Fence Industry

TRADE NEWS

MARCH, 1961 • The Journal for All Fence Erectors and Suppliers • 60¢ per COPY

INDUSTRY SURVEY
IN THIS ISSUE
SEE PAGE 14

Imperial Close-Woven

Williamsburg Colonial Screen

Imperial Cleft-Woven

3 Reasons why you will sell more DUBOIS Fence in 1961...

lite pole
100% Mark Up

hobbie house
Ideal for Pool Dressing Room

1 DUBOIS — 1st CHOICE of Architects, Builders, Homeowners; — For 60 years America's preferred quality line of fine treated wood fencing.

2 Only DUBOIS guarantees all screening styles. 15 to 20 year guarantees protect against rot, termites, decay often found in untreated swamp cedar. Dubois Penta **Pressure-Treated** Posts outlast unprotected posts 4-to-1.

3 New Expanded line of Profit-Builders from Dubois include New LITE POLE and HOBBIE HOUSE (left); New WILLIAMSBURG COLONIAL SCREEN; New CORONADO BASKET-WEAVE; plus a dozen additional styles for more sales, more profits in 1961.

4 plants, 7 distribution yards assure year-round supply. Write now for FREE 1961 Dubois Catalog and information on Dubois Profit-Building Franchises.

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Taylor, Florida
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FENCE & GARDEN CO., INC.
Finest in Wood Fencing Since 1901

GENERAL SALES OFFICES:
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Ridgefield, New Jersey

Suburban Two-Rail

Coronado Basketweave

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Fence Industry

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Company Name Ordered by

Street and Number City and Zone State

For the Fence Erector, Manufacturer and those serving this industry.

To help us serve you please ✓ ERECTOR ☐ MANUFACTURER ☐ DISTRIBUTOR ☐ CONTRACTOR ☐

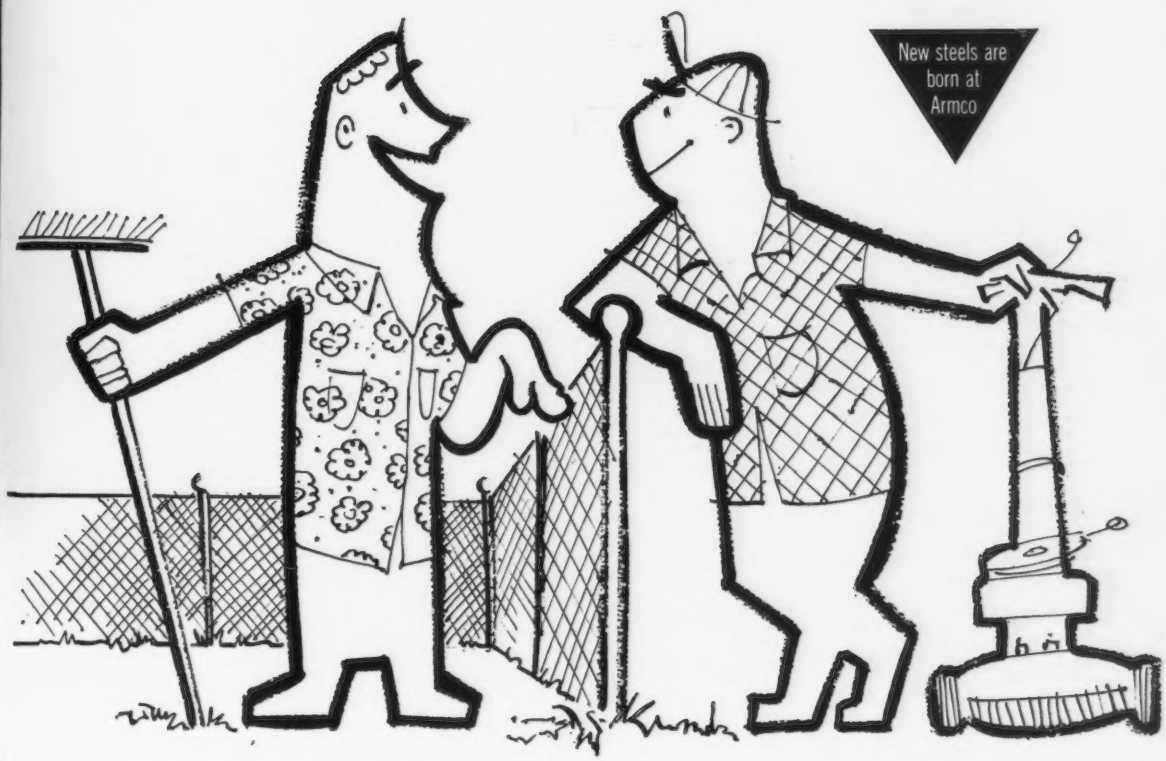
EXPORTER ☐ IMPORTER ☐ SALES AGENT ☐ WHOLESALE ☐ RETAIL ☐

THIS IS A SPECIAL OFFER SENT ONLY TO A SELECT GROUP—SUBSCRIPTION INCLUD

★ **The International DIRECTORY of Fence Materials**

TODAY? – THANK YOU!

SATISFY CUSTOMERS...SELL MORE
with fence parts made from Armco ZINCGRIP Steel Tubing



Satisfied customers make your best salesmen. And they *stay* satisfied when posts, top rails and gate frames have strength, rust-resistance and good looks of Armco ZINCGRIP® Steel Tubing. It's zinc-coated inside and out! Let us send you more information. Just mail the coupon.

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This symbol stands for top strength and durability

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Street_____

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ARMCO **Armco Division**

Vol. 4
No. 3

Fence Industry
TRADE NEWS

MARCH
1961

The Journal of all Fencing and Erecting

CONTENTS

FEATURES

Winter Is Cedar Harvesting Time — Cover

W. T. Vickery (left), active in industrial development in the Unity, Maine, area, watches while Harold Harding of Milmac, Inc., one of 15 wood fence manufacturers in the state of Maine, measures a 10" diameter cedar in a typical central Maine cedar stand. J. W. Marsh photo from Maine Department of Economic Development.

Legal Aspects of Fencing — *Howard N. Morse* — 10

Testimonials as Sales Aids — *Grier Lowry* — 12

Survey and Analysis of the Industry — 14

Freeway-Chain Link Specifications — 23

Value of Calcium Chloride — 27

Index of Feature Articles in FI — 32

DEPARTMENTS

Editorial — 2

Letters to the Editor — 3

Business Trends — 6

News Briefs — 9

Awards-Projects-Proposals — 30

Information—News Notices of Importance — 31

NOTICE!

Closing date for all advertising and editorial matter is the 1st of the month preceding the date of issue. Omissions or errors appearing as a result of receipt of late copy cannot be construed as the fault of the publishers, nor can proofs be furnished on late copy subject to revisions or corrections.

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Logic and the Law

One of the functions of the federal government is to regulate the business activities of the nation. To accomplish this, certain disciplines are of course necessary, even in a free society. In a democracy, people freely agree upon certain restrictions and restraints and abide by them. This keeps people and groups of people (including business firms) from getting in each other's way. It facilitates the flow of everyday commerce.

The disciplines freely agreed upon by the U.S. people might be compared to the rules of a game—a game of chess, of football or baseball. Once the rules are agreed upon—it is a mutual majority agreement not imposed by force—the players abide by these rules, and infractions of the rules are penalized. However, the rules are plainly stated, and they do not contradict one another. If there is any misunderstanding, the rules are further clarified and qualified, so that all the players understand them.

True, in the complexities of the federal government, the "rules" of business are not made quite this simple—perhaps they could not be. But there is nothing to prevent the rules from being constantly checked and double-checked against actual everyday experience, so that the regulations "make sense." In short, rules and regulations must be logical and orderly. If they are not, injustices and confusion result.

Surely this is not too much to ask of any regulatory group of rule-makers, whether it be the group that sets up the "rules" for the Big Ten football conference, or the group which regulates "price-fixing" in business. Consistency in rules is the essence of both social and business life in a democracy. If this were not so, driving on the left or right side of the highway might be a matter for local decision, rather than mutually agreed upon national decision.

When rules are not orderly, logical, and consistent, everyone is confused, including the rule-makers. And when a body of rule-makers becomes so large and so unwieldy as to be unable to remedy its own illogicalities, it is time to take stock, both of the rules and the rule-making bodies.

The confusion engendered by both rules and rule-makers is rather evident in a recent federal case. Certain electrical equipment companies, it will be remembered, were judged to be law (rule) breakers because they agreed among themselves to charge the same price for their products, even though, presumably, they were "competitors." They "fixed" prices.

Yet, at about the same time this happened, the Federal Trade Commission cited a St. Louis brewery for lowering the price of their beer—apparently some "rule" prohibited the lowering of price.

Yet, barber associations all over the country "set" the price of a hair cut.

Yet, certain federal government bureaus "fix" the prices of grain, railroad-airline tickets, and hundreds of other products and services.

Yet, certain local governments "regulate" the price of liquor (by the bottle) and water (by the gallon).

Yet, labor unions "fix" the price of the wages they require—and strike if they don't get them.

If our democracy is to be strong, it must be logical. It cannot condone injustices resulting from conflicting rules on the same subject. Either our economy is "competitive," or it is so only in a very restricted sense. Whatever restrictions there are, however, should be consistent.

An orderly government has the duty to ferret out and overhaul any inconsistencies in its "rules." Only so can it remain healthy and have the respect of the people and groups of people it regulates.

LETTERS TO THE EDITOR

Starting New Business

Sirs:

I am proud to announce that I have opened my own company, after having been branch manager for Allied Chain Link Fence Co., Inc., for the past six-and-one-half years. Five of these were spent here in Little Rock. We intend to sell and erect all types of fences, and later on we are going to add related items. I have been receiving your magazine for some time and enjoy it very much. I am enclosing a check for my new subscription.

W. Warren Dillon Capital Fence Co.
5609 Mabelvale Pike Little Rock, Ark.

Invaluable Guide

Sirs:

I would like to commend you on your fine magazine. We find it an invaluable guide to new ideas in materials and tools for fence building. In our estimation, your magazine is a credit to the industry, and we sincerely hope that you will always publish this fine service.

Phil Paradis Universal Fence Co.
28 College St. Binghamton, N. Y.

Endorses Editorial

Sirs:

We have read and appreciate your October 1960 editorial, "Inform the Customer?" We strongly endorse the well-founded business philosophy that a completely and truthfully informed buyer can help the seller defend himself against the price-cutter. One of the most important truths in human affairs is "You cannot get something for nothing." A buyer who accepts a price-cutter's offer must expect to sacrifice something somewhere in the transaction.

The seller who arms the buyer with complete and truthful information fortifies himself—by forcing the price-cutter to try to prove how he can offer the same for less. The seller, with his position established, is then able to counter the attack of the price-cutter.

It is equally important that the seller be informed to an equivalent degree of the facts concerning the buyer and the price-cutter, so that he may plan his selling campaign intelligently.

Let's have more on this important theme.

A. W. Millard MacGillis & Gibbs Co.
4278 N. Teutonia Milwaukee, Wis.

Wants Sleeve Couplings

Sirs:

We are trying to locate a manufacturer who is in a position to supply hot galvanized sleeve couplings, for 1⅜" and 1⅝" toprail. These couplings are usually six inches in length.

H. A. Sollmann Robertson Steel & Iron
71 Elm St. Cincinnati 2, Ohio

MORE—Page 9

Build year-round sales volume with

Panelweve

"LOK-TOP" CHAIN LINK PICKETS

with EXCLUSIVE... LOK-TOP design

New SALES TO OLD CUSTOMERS

Every owner of a chain link fence is a prospect for Panelweve. Inexpensive and easy to install, Panelweve aluminum pickets provide the glamour and privacy your chain link customers *didn't* think they could afford.

More SALES TO NEW CUSTOMERS

Sales volume goes up when you sell chain link fence *plus* Panelweve. This profit-producing combination gives your customer everything he wants in a fence — beauty, and glamour, plus the durability and low maintenance of steel and aluminum.

ONLY PANELWEVE HAS THESE BUILT-IN SALES FEATURES:

- *Exclusive "Lok-Top" design*
- *Made from spring-tempered Reynolds aluminum*
- *Lifetime finish in 7 decorator colors*
- *Pre-cut to exact lengths*
- *Simple to install in any chain link fence*
- *Nationally advertised*

**patent pending*

Distributed nationally by leading fence manufacturers. Write today for the name of your distributor.

Panelweve "LOK-TOP" ALUMINUM PICKETS

ALL PRODUCTS COMPANY, DEPT. F-3, MINERAL WELLS, TEXAS

Firestone

welcomes

weblite

Firestone is pleased to welcome an important new addition to the synthetic fibers field . . . . WEBLITE FENCING. Weblite is another development from the exceptionally talented chemists, research and development groups employed by the Firestone Synthetic Fibers Company to help produce products for the finer American home—its beauty and comfort. Weblite is a new label for the fence industry . . . from an old and trusted source. Through complete freedom from the elements, and long-term stability, Weblite will provide an important new dimension to home fencing. Firestone, the bridge between the idea and reality, is indeed happy to have been a partner in the development of Weblite Fencing made from Firestone's famous Velon.

Firestone Velon®

weblite

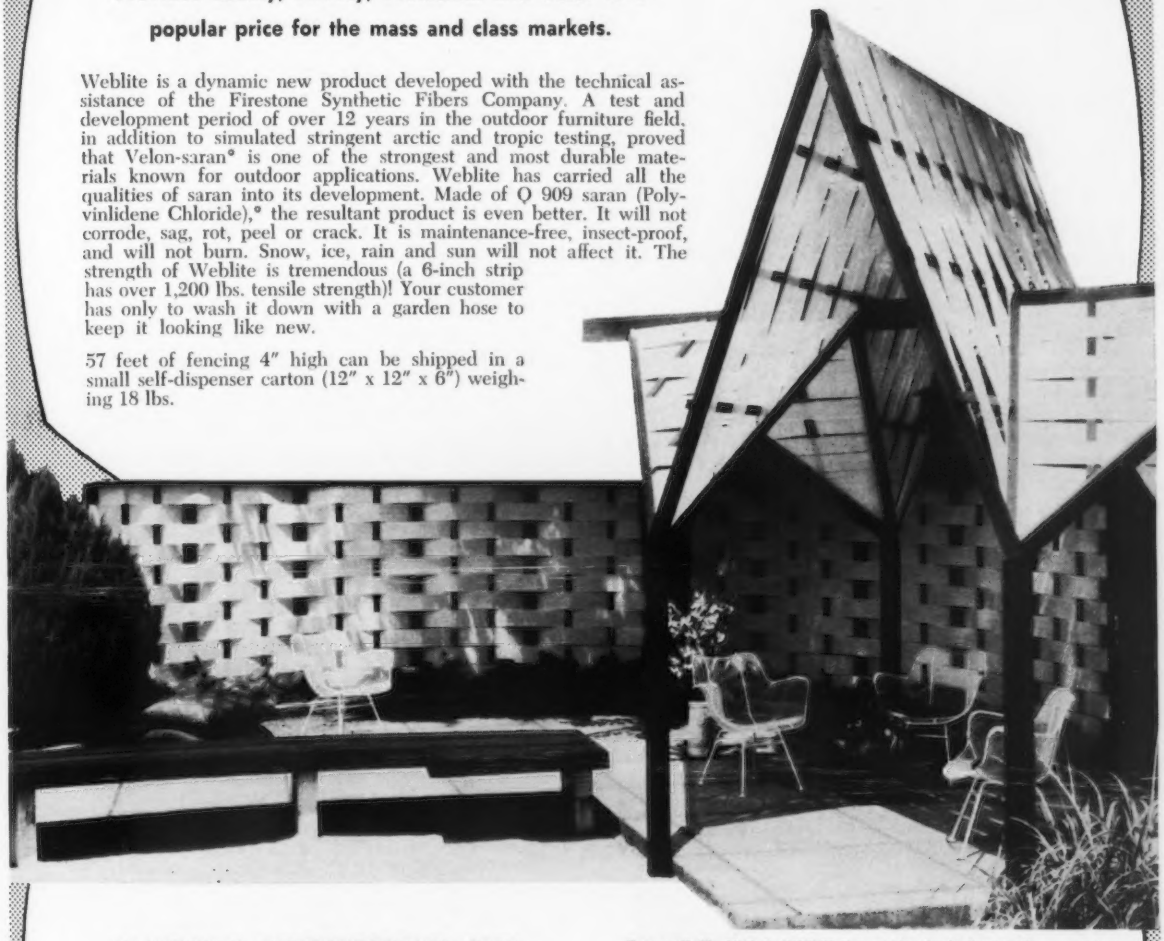
REVOLUTIONIZES THE FENCE INDUSTRY!

"Guaranteed" to Outlast the Post You Put it On

Provides Beauty, Privacy, Protection and Color at a popular price for the mass and class markets.

Weblite is a dynamic new product developed with the technical assistance of the Firestone Synthetic Fibers Company. A test and development period of over 12 years in the outdoor furniture field, in addition to simulated stringent arctic and tropic testing, proved that Velon-saran* is one of the strongest and most durable materials known for outdoor applications. Weblite has carried all the qualities of saran into its development. Made of Q 909 saran (Polyvinlidene Chloride),* the resultant product is even better. It will not corrode, sag, rot, peel or crack. It is maintenance-free, insect-proof, and will not burn. Snow, ice, rain and sun will not affect it. The strength of Weblite is tremendous (a 6-inch strip has over 1,200 lbs. tensile strength)! Your customer has only to wash it down with a garden hose to keep it looking like new.

57 feet of fencing 4" high can be shipped in a small self-dispenser carton (12" x 12" x 6") weighing 18 lbs.



How applied?—SNIP & STAPLE! You supply simple framework . . . reduce installation costs 20%
Tools?—SCISSORS & STAPLER!
Cost?—MOST ECONOMICAL! (Under $1 per foot for a 5-ft. fence)
Profit?—THE W-I-D-E-S-T MARGIN FOR DEALERS!

DEALERSHIPS—DISTRIBUTORSHIPS OPEN AVAILABLE WITHOUT COST!!

Here's the chance to get in on a ground-floor opportunity while Territories are still open. This is an excellent and lucrative deal for alert fence business men. Business potential virtually unlimited! ACT TODAY! Get all the facts. Start cashing-in on Sales and Profits NOW!

Salesmen carrying fence lines invited to reply.

Fill-in & Mail Coupon

WEBLITE, Inc. Dept. FIN-2-61
24 Jericho Turnpike, Mineola, N. Y.
Ploneer 7-8288

- ☐ I am interested in a Dealership.*
- ☐ I am interested in a Distributorship.*
- ☐ Please have your representative call.
- ☐ Send details on new Weblite Chain Link Lattice.

NAME_____
ADDRESS_____
CITY_____ ZONE___ STATE_____

*minimum inventory investment $1,000.

weblite, inc
24 JERICHO TURNPIKE,
MINEOLA, L. I., N. Y.
Ploneer 7-8288

There is a feeling among many fence dealers that if business is good in March, the balance of this year has a good chance of showing improvement over the previous year. Fence men think that whatever business is lost in March due to bad weather is never "made up." It is significant to note that a hefty share of the rise in unemployment in the construction industry in Nov.-Dec. '60 and Jan. '61, was caused by heavy snowstorms in the northeast and parts of the east and south.

In FI's own survey of the fence industry, which is published in this issue (see page 14), some fence products appear to be gaining a wider market. Aluminum chain link, for example, is now handled by 15 percent of the fence firms; chain link filler slats, by 24 percent; guard rail, by 25 percent. In ornamental iron, which is handled by 24 percent of the fence firms, there are reports of an increased surge of activity.

New manufacturers entering fence field. There seems to be a trend in that direction on the part of numerous manufacturers not heretofore in fencing. Some of them are in the multi-million dollar bracket, and they are seeking a new market (fencing) with which to fill the gap on lost or slipping volume in the other markets in which they are involved. Products in which they are interested cover just about the whole range of fence materials, but especially newer developments in the field.

Beginning of trend against use of imports in U.S. products? This may be the meaning of a recent action taken by the International Brothehood of Electrical Workers, which served notice that its members will refuse to work with Japanese electronic parts after May 1. The union is blaming loss of jobs by its members (at the rate of over 1,000 per month) on the fact that so much equipment is imported. The Clothing Workers Union is considering a similar move—to limit imports of Japanese textile fabrics (not finished garments).

Displaced businesses. The Small Business Administration says that during the decade of the 1960's, at least 150,000 businesses are going to be forced to move because of urban renewal projects in U.S. cities. SBA advises that such businesses take advantage of both financial and advisory aids offered by that government agency. In a study recently completed, it was found that over 75 percent of business firms dislocated by urban development and renewal, have relocated successfully. Some dislocated firms, says SBA, have neglected to take advantage of available assistance, much to their own regret.

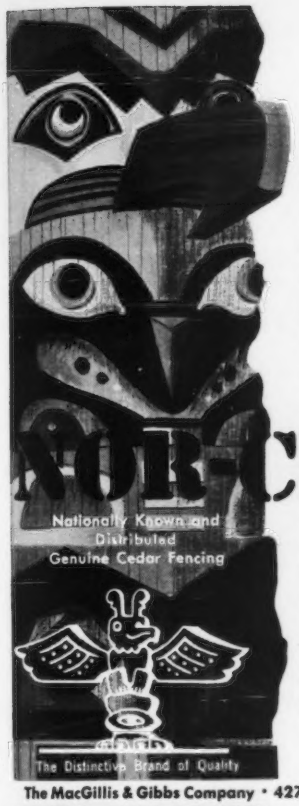
Business failure rate at 20-year high. It stands at 57 failures per 10,000 firms for 1960, as compared to 52 failures for '59, according to the records kept by Dun & Bradstreet, Inc., a national credit reporting service. In 1960, 15,445 firms failed, topping the '59 figure by 1,400, and setting the largest total since 1933, when 19,859 companies closed their doors.

Total inventories of manufacturers and distributors were reduced $450 million in Dec. '60, after seasonal adjustment. This brought the decline, since the high point in June '60, to $1.2 billion. But as a result of the sizable accumulation during the first part of '60, business inventories rose by $2.8 billion during '60 as a whole, totaling $91.6 billion at year-end.

Sales and new orders received by manufacturers edged down further in Dec. '60, after seasonal allowances. Sales and new orders both declined one percent from the preceding month. Sales in 1960 as a whole totaled $365 billion, up two percent from '59.

Highway construction was stimulated by the decision of the Kennedy administration to make immediately available to the States the "contract control" allotment, normally scheduled for April-May-June availability. About $724 million in federal funds is involved. This does not constitute an increase in highway funds for the fiscal year, but makes them available several months sooner.

Cost of highway construction in the fourth quarter of 1960 dropped 1.2 percent below the previous quarter. The price index of average bid prices, at the end of 1960, stood at 135.0; in the third quarter of '60 it had been at 136.6. This contrasts to the all-time high for the index—143.4 in the fourth quarter of '57.



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PROTECTION
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DURABILITY

Rustic White Cedar Fencing of All Styles

NOR-CRAFT®

Our two factories and large stock of seasoned material have enabled us to provide the kind of service that means pleased and successful dealers.

At present, there are excellent dealerships available. We invite you to inquire about adding NORCRAFT quality to the other fine products you now handle.

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CONTINENTAL
Chain Link Fabric

The only fabric made of Konik Steel for greater strength and increased rust resistance

Longer Fence Life—Lower Maintenance Costs—these are powerful fence selling features. You get both when you use Continental Fabric. Proved in thousands of installations. Every link is made of Konik Steel . . . stronger by actual test plus increased clear through rust resistance. Galvanized after weaving for double protection. Heights and gauges to meet all residential-industrial needs.

WRITE TODAY FOR COMPLETE WHOLESALE LIST

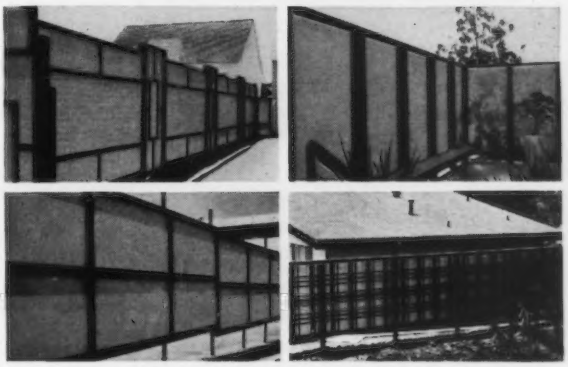
Gates, Posts, Fittings also available

KONIK STEEL

Konik is Continental's own special analysis steel containing copper, nickel, and chromium in precise proportions for greater tensile strength—at least 85,000 lbs. per square inch, and extra clear through rust resistance.

CONTINENTAL STEEL
CORPORATION, KOKOMO, INDIANA

EXPAND YOUR PROFITS
In The Expanding Fiberglass Fence Market with **FILON®**



The first really new trend in fencing—colorful, translucent fiberglass fences . . . a profitable, fast-expanding market. You read about FILON fencing in FENCE INDUSTRY Magazine. The demand is here and big, and full profits are waiting. Cash-in on this growing market with FILON's complete line of quality fiberglass fencing materials and heavy advertising support.

BUILD YOUR BUSINESS WITH THESE FILON FEATURES

• EXCLUSIVE NYLON-REINFORCED STRENGTH • SHATTERPROOF, WEATHERPROOF • WIDE COLOR SELECTION • NO PAINTING • EXCLUSIVE THERMOBLOK HEAT CONTROL COLORS FOR PATIO ROOFS AND AWNINGS • MOST COMPLETE LINE OF CORRUGATED AND FLAT PANELS, FLAT ROLLS, AND CROSS-CORRUGATED MATERIAL IN ROLLS.

NEW!
FILOPLATED®
FILON.
GUARANTEED 15 YEARS

Surface Appearance, Color Stability and Light Transmitting Properties. Filoplated Filon is also structurally guaranteed for the life of the installation.

NEW!
ROLOLITE®
Translucent Corrugated Fiberglass Panel in Rolls

Rolls on...for wide-span, seamless coverage. Saves time, labor and money! Send for Rololite Facts Folder.

Complete facts and written guarantee available on request.

Insist on the FILON label with the Exclusive FILON Guarantee on every panel you install

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Profitable FILON facts, ideas, plans, FILOPLATED FILON data, Rololite Folder, and a reprint of the FENCE INDUSTRY article, "Expanding Market for Fiberglass Fencing."

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Please rush "FILON FENCE FOLIO" to:

Name_____

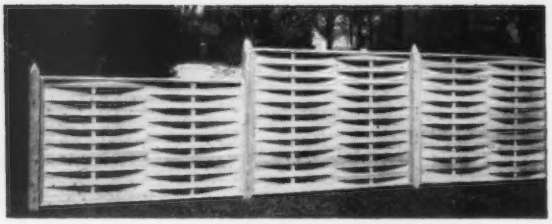
Address_____

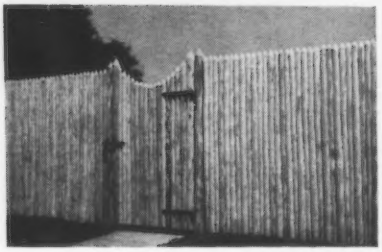
City_____ Zone____ State____

Company_____

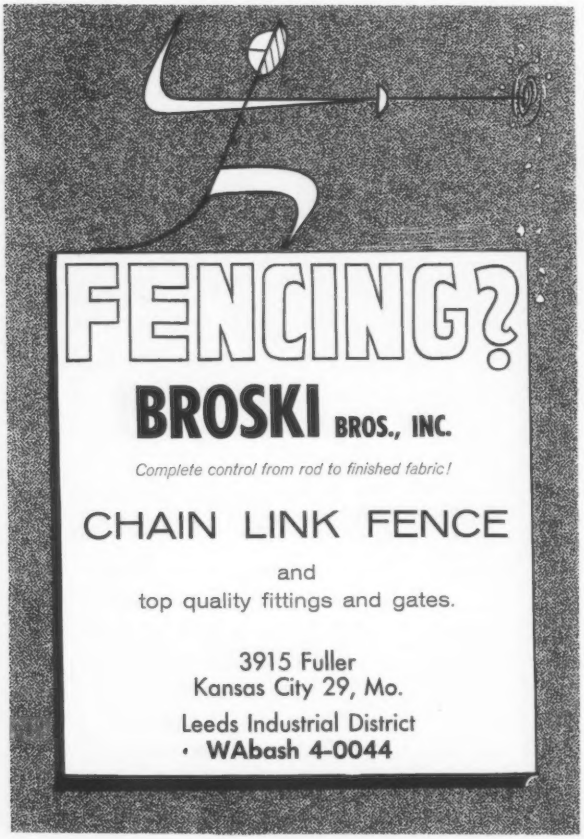
FARLEY FENCES

217 DAVIDSON BUILDING
BAY CITY 1, MICHIGAN





When you sell FARLEY FENCES — you sell QUALITY! This quality, which pleases your customers, is found throughout the complete selection of styles of Farley Fences. Farley prices also please — which means more sales and profits for you! The Farley Fence line includes both rustic and dimensional types in Michigan White Cedar. A limited number of dealerships are available to those who qualify. Write immediately for details.



FENCING?

BROSKI BROS., INC.

Complete control from rod to finished fabric!

CHAIN LINK FENCE

and

top quality fittings and gates.

3915 Fuller
Kansas City 29, Mo.
Leeds Industrial District
• WAbash 4-0044

HAYNES EARTH DRILLS

WHY MORE ERECTORS ARE BUYING HAYNES AUGERS

- ★ QUICK CHANGE SNAP-ON AUGERS WITH BOLT-ON POINT and BLADES—DRILL ALL SOILS—SAND ROCK AND ROCKY GROUND
- ★ FLEXIBLE CABLE DRIVE FOR PORTABILITY
- ★ CENTRIFUGAL CLUTCH AND FINGER-TIP THROTTLE CONTROL
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- ★ ENGINE ON WHEELS — LIGHT — EASY — ONE-MAN OPERATION
- ★ HIGH SPEED AUGER CUTS HOLES FASTER AND CLEANER WITH NO STICKING

SNAP-ON AUGER SIZES 4" 6" 8" 9"
WITH EXTENSIONS FOR GREATER DEPTHS

HAYNES SEE YOUR DEALER or WRITE MANUFACTURING CO., Livingston, Texas

LETTERS—from Page 3

Wants Snow Fence Machine

Sirs:
For many years we have been fabricating snow fence, the usual wood lath with 10 strands or five cables of twisted galvanized wire. We are thinking in terms of perhaps replacing our old machine with a new and more modern type of fabricating machine for weaving snow fence. What firms could supply us with this type of machine?
M. E. Keever Kelsay Lumber Co.
P. O. Box 526 Colorado Springs, Colo.

No Political Propoganda

Sirs:
The change in policy away from political propaganda and toward more strictly giving attention to business and industry is noted with approval. I believe that politics is out of place in a trade journal—and besides I disagree entirely with your political views.
E. C. Murphy, Sr. Murphy Lumber, Inc.
Blue River, Ore.

ED. NOTE: *Political views have rarely been expressed in our magazine. Those rare times our views were mostly concerned with taxation in relation to the health of the business community. So far as government intrudes into business, that far is our interest in government worthy subject matter for a trade journal.*

Stainless Steel Barbed Wire

Sirs:
I would like to find out where I can purchase stainless steel barbed wire, preferably from a manufacturer.
L. Guglielmello Rockland Fence
Route 59 West Nyack, N. Y.

News Briefs

After 35 years in Los Angeles, Summerville Fence Co., 1913 W. Slauson, reports that it will quit the chain link fence business. Owner George Summerville, 73, will be retiring.

High's Engineering, P. O. Box 788 Wilmington, N. C., is the new name and address of the firm formerly known as High's, Inc., Wilson, N. C.

Burkett Fence Co. is now located in a new building at 9405 W. Jefferson, Culver City, Calif. The firm's previous plant at 2419 S. La Cienega, Los Angeles, was razed to make way for a freeway development.

A new gate closer has been developed by Harris Fence Co., 8720 S. San Pedro St., Los Angeles, Calif.

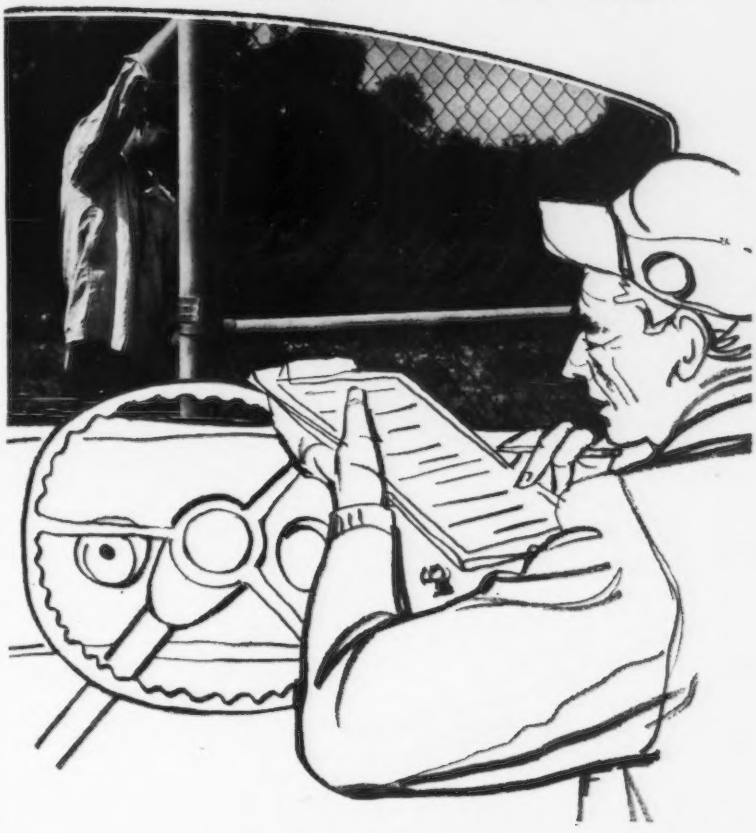
New Business Established: Arrow Fence Co., 2420 N. 37th Way, Phoenix, Ariz. Janet Chandler.—Williams Fence Co., 201 S. Slagel, Williams, Ariz. David McNelly and William Hagiller.—Custom Built Railing & Fence Co., Inc., c/o Michael Levi Matar, 29 Broadway, New York 6, N. Y.

The new mailing address for the Texas Highway Department, District 21, is P. O. Drawer EE, Pharr, Tex.

MORE NEWS—Page 31

High costs preventing low bids?

Get FOSTER structural fence pipe... PLUS



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Legal Aspects of Fencing

Problems which confront the erector of fences, from the viewpoint of law

By Howard Newcomb Morse

(Author and attorney, contributor to American Peoples Encyclopedia, Chicago Bar Record, Southwestern Law Journal, Loyola Law Review, and others.)

Howard Newcomb Morse

Chain-Link Fence Utilitarian

There was a restrictive covenant prohibiting the erection of fences (except ornamental fences) along the sides and rear line of any lot in a tract of land in the southwest part of St. Louis, Missouri, subdivided into 160 lots and platted and designated as "St. Louis Hills Estates No. 2." Charles E. Harding acquired lot No. 41. He caused plans for a house to be prepared by an architect, and before actual construction got under way, the plans were submitted to the trustees of the subdivision for their approval. The plans did not disclose that a fence was to be erected on the premises.

At a time when Harding's house was about completed, he erected metal posts about 1½ inches in diameter, set in concrete, extending about 4 feet above the surface of the ground along the side and rear line of his lot. Trustees Eichelsbach and Cammann saw the posts on the day they were erected, and on the same evening the former received calls from persons living in the immediate vicinity, complaining about the erection of a fence in violation of the covenant.

The trustees, in a meeting held the same evening, decided to engage an attorney in connection with the matter, and within a day or two John C. Casey was retained. Two days later Casey not only advised Harding that there was a covenant against fences (except ornamental fences), but "tried to talk him into removing the fence." Harding's response was he "intended to continue to erect the fence." Five days thereafter chain-link fabric was attached to the posts and the fence completed.

Casey, on behalf of the trustees, brought suit in the Circuit Court of the City of St. Louis to restrain and enjoin Harding from maintaining the fence. The court issued an injunction mandatorily ordering Harding to remove the fence. Harding appealed, claiming that the fence was ornamental and therefore not prohibited by the covenant.

The St. Louis Court of Appeals affirmed the decision of the court below. The Court of Appeals declared: ". . . a 'chain-link' fence is not an 'ornamental,' but is strictly a 'utilitarian' fence." Harding planted shrubs and vines on the fence so as to obscure it from view as much as was reasonably possible. The foliage consisted of celosia, commonly known as rooster comb, and morning-glory vines, both of which are annuals and, upon frost or cold weather, would die, wither, turn brown, and blow away, leaving the fence denuded. Harding contended that the presence of the foliage made it an ornamental fence. The Court of Appeals rejected this contention.

The Court of Appeals stated: "All that remains, then, is to decide whether or not the plantings testified to in the evidence change the fence. We do not think they can. . . . Regardless of whether these plantings were perennials or annuals, or what their name was, the fence remains the same. The plantings may ornament the fence but it is the fence we are concerned with, and even in that state the fence is still utilitarian even as we previously declared it to be. An 'ornament,' we are told by Webster's New International Dictionary, 2d Edition, is 'That which is added to embellish or adorn; that which adds grace and beauty; . . . Addition or inclusion of anything that beautifies; . . .' This fence does not come within that definition."

Right to Maintain Fence over Stream

Thomas S. Griffith filed an action in the Superior Court of Spokane County, Washington, against F. J. Holman to obtain $250. as damages sustained by reason of Holman cutting a barbed wire fence. The fence was cut on Griffith's land where it crossed a freshwater stream known as "Little Spokane River," which flowed through Griffith's land. Griffith also sought to obtain another $250., the value of certain trout fish which Holman caught in the Little Spokane River while in a rowboat on the river where it ran across Griffith's land. The river was of an average width of 40 feet and of an average depth of four feet, and was nonnavigable. The court rendered judgment for Griffith for $500., and Holman appealed.

There were two propositions involved:

(1) Did Griffith have a legal right to place on his land the barbed wire fence across the stream, so as to prevent the passing of rowboats? and

(2) Did Holman have a right to catch fish in the stream on Griffith's land, he being in a rowboat?

The Supreme Court of Washington answered the first question affirmatively and the second question negatively, and sustained the decision of the court below. The Supreme Court stated: ". . . it would seem in this case that . . . the right of fishing remained in the owner of the banks, the public having only an easement over the land, and the taking of the fish . . . would be a trespass for which the owner would be entitled to damages . . . the riparian owner has the exclusive right of fishery upon his own land . . . the river from which these fish were taken was nonnavigable . . . the owner had a right to maintain a fence over the same . . . he (Griffith) had the exclusive right of fishing in the waters flowing over the land."

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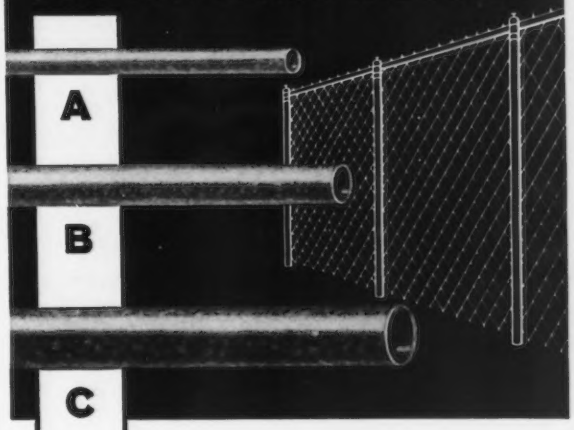

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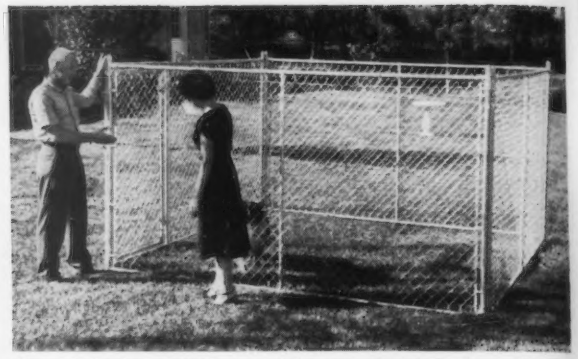

Above, a Cordry-made four-panel dog pen which helps keep the firm busy during the winter slack season—and which is a popular seller.

At left, William R. Cordry (left) holds one of his regular sales training conferences with a member of his part-time sales staff, which works nights and week-ends, on a straight commission basis.

Customer Testimonials as a Sales Aid

William R. Cordry encourages his sales staff to chaperon prospects to see Cordry installations at the homes of 180 selected customers.

In 1956, William R. Cordry established the company which bears his name. He has already met and faced the problem familiar to most fence dealers—what to do to sustain business during the cold weather slack season. He tackled the problem through the following approaches: (1) The addition of a staff of part-time salesmen who work on straight commisssion, and who sell the year around. (2) The addition of a line of storm windows. (3) The manufacture of dog pens and kennels, an item with year-around sales appeal in a booming pet market.

Located in a suburb of Kansas City, in Grandview (Mo.), the Cordry Company's business is mainly in this suburbanite area, although installation jobs are accepted in the entire five-county trade area around the big Missouri metropolis. Chain link fencing is a specialty, and most sales are in this category.

Quality, service, and fair price are the factors which are stressed in selling fences. Satisfied customers, Cordry points out, provide a steady stream of referral business—for a dealer whose market is primarily residential, this holds great importance. "We encourage salesmen," says Cordry, "to make liberal use of customer testimonials. Each man on the sales staff is given a list of 180 satisfied customers, representing a cross section of the entire area. Salesmen are encouraged to chaperon prospects to these homes—for first-hand inspections of our workmanship. It's the most effective salesclincher of all."

The salesmen are carefully chosen, and are trained through briefing sessions. They learn the proper method of filling out FHA forms, and about the special features of the fencing sold. They learn the company's product story by actually watching installations in progress. "By first-hand observation," says Cordry, "these salesmen see for themselves the results of using quality materials! They ask about the hows and whys. With that kind of training they can talk about our product and service freely and easily to all prospective customers."

Like many other dealers, Cordry believes that a well-constructed, attractive gate is a major key to selling fencing. "The salesmen," he comments, "are briefed to point out that there is no additional charge for installing extra gates in the intial construction work—but that later it will cost extra. With this talking point we usually set at least two or three gates per job. Not only do the gates run up the tab, but we find that the customer with several convenient gates is better satisfied, and more likely to bring us referral business."

About $6,000 per year is allocated for advertising and promotion, with most of it earmarked for news-

MORE—Page 29

Cordry specializes in chain link installations in the suburban area of Kansas City, Mo. Here he works on the frame for a dog pen.

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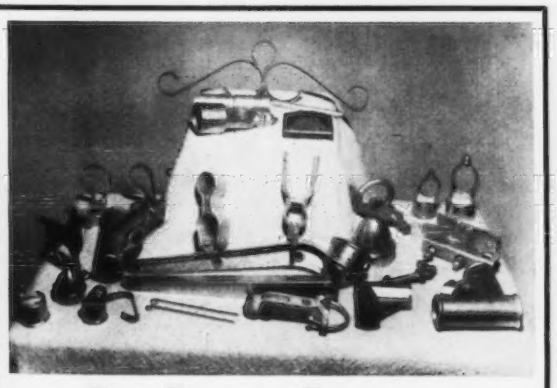

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SURVEY and Analysis . . .

How did the fence industry fare in 1960? What does it expect during the coming year? How do sales compare to 1959? The answers are here.

FENCE INDUSTRY's third annual survey is compiled from an adequate sampling of several thousand leading firms in the fence field. Numerous subjects are covered, and wherever possible there are comparisons to a year ago; in some cases comparisons back to 1959. Projections for the entire industry are based on the sampling, and on the carefully computed totals for the entire field.

We would emphasize two things: the industry itself has supplied us with the facts, figures, and the opinions. (Many opinions regarding the outlook for the fence business during 1961 were published in last month's issue of this magazine.) The interpretations and projections of the figures and facts culled from the survey responses are indicators of trends in the industry. We believe that, although the projected figures are susceptible to some variation, they do, on the whole, give a reasonably accurate picture of the fence industry.

To give some quick visual meaning to the text of the survey, five charts and four tables summarize some of the information gleaned from the industry. The findings of the survey are summarized on page 22. On the whole, the industry shows strong activity and its outlook is optimistic.

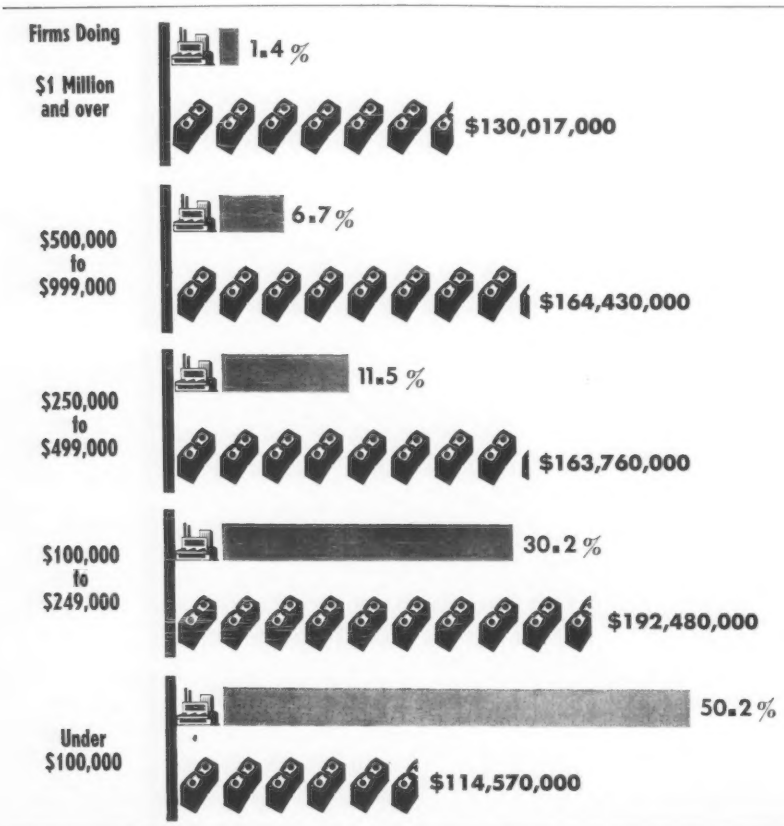
THREE-QUARTER BILLION DOLLAR VOLUME

Gross dollar volume of sales for the fence industry in 1960 is divided into five categories, based on the amount done within each grouping. A glance at the accompanying chart gives the percentage of firms in, and the dollar volume for, each category.

Total gross dollar volume for 1960 amounts to $765,257,000. Since our survey includes those most active in the fence business, especially from the standpoint of erecting, and as our response from the dealer selling to the farm trade was not adequate, we can assume that the fence industry in its entirety may be doing an annual gross volume neighboring on $1 billion.

The survey questionnaire asked fence firms to give their actual gross dollar volume. These figures were projected on the basis of the number of firms in each dollar group.

In excess of $300 million is accounted for by the 80.4 percent of the firms reporting annual gross sales of $249,000 and under. Slightly less than $300 million is accounted for by the 8.1 percent of firms reporting gross sales of $500,000 and over. The middle group, having gross sales between one-quarter and one-half million dollars, rounds out the total shown on the chart.



GROSS SALES VOLUME

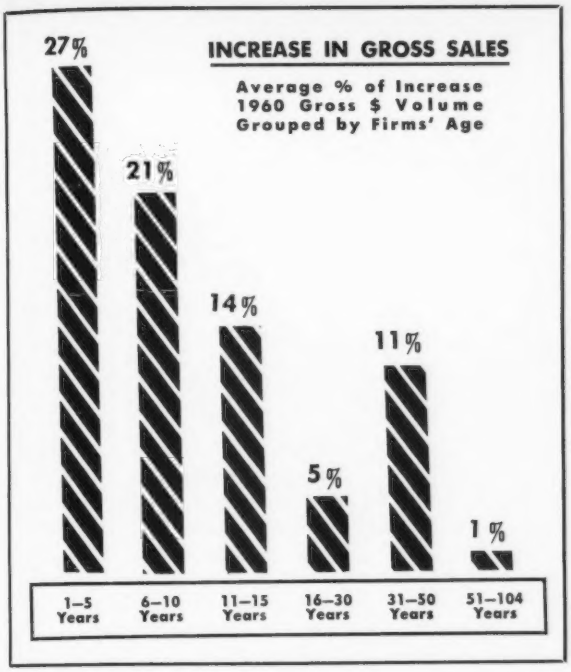
The accompanying chart summarizes the gross dollar volume of sales for the fence industry during 1960, projected.

The industry is divided into five groups, according to the dollar volume done by the fence firms in each group.

The horizontal bars show the percentage of firms in the group as related to the total number of fence firms in the U.S.

The money bars show the relative dollar volume total for each group.

Thus, it will be seen by looking, as an example, at the final group on the chart, 50.2 percent of the industry is under the $100,000 category of annual sales, and they did a total dollar volume for 1960 of $114.5 million.



PERCENTAGE OF INCREASE IN $ VOLUME

The fence industry as a whole shows a 13 percent increase in gross sales, '60 over '59. Divided into two company-age groups, those firms in business for from two to 15 years show a 21 percent increase in gross sales ('60 over '59); those in business 16 years or more show a 6 percent increase.

The accompanying chart shows the *averaged out* percentage of increase in gross sales ('60 over '59) for six different categories based on the length of time in business. The percentages of increase shown in the graph are based on the *actual* percentages of increase and decrease given by the fence firms—and then averaged out, a process which takes into consideration those saying business was the same.

There can be no doubt that the fence industry is highly active. For example, the company-age groups from two to 15 years show dollar volume increases of from 14 to 27 percent over the '59 gross sales. All age groups show some increase. For purposes of simplification, the percentages on the chart do not include fractional percentages—they were evened off at the nearest full percentage. Thus, the company-age group of 51 years and over registers a 1.3 percent increase ('60 over '59); the one to five year group, 26.7 percent; the 16-30 year group, 5.3 percent.

It is readily understandable why firms in business 15 years or less show greater percentages of increase, since the growth rate in the early years is likely to be rapid.

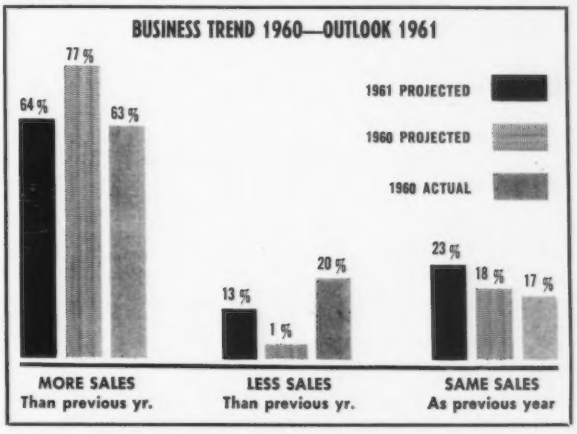
It should also be emphasized that in the averaging out of percentages—an accepted business statistic practice—the high percentages of increase can often strongly outweigh the lesser numbers of high percentages of decrease.

Look again at the "Trend-Outlook" chart. You will see that 20 percent of the fence firms reported less sales in 1960. But 63 percent reported more sales, and some of the percentages of increase in this group were high—much higher than most of the percentages of decrease.

Averaged out, therefore, the industry as a whole shows fairly strong percentages of dollar volume increase all across the board. However, those 37 percent of fence firms who report "the same" or "less" business for 1960 (see "Trend-Outlook" chart), will appear to be neglected in the averaged-out percentage. This is not so. Rather, it must be interpreted as meaning that the firms which did more business in '60 had a probable majority which found business exceptionally active.

Remember, too, that the fence industry appears to be one which registers unusually wide variations in percentages—from as high as 250 percent increase in gross dollar volume ('60 over '59) to as much as 30 percent decrease.

Such volatile business activity can only mean that the fence industry is relatively young, that it is subject to extreme successes and extreme failures (bankruptcy, quitting business), and that the prices paid by the consumer for fencing are quite unstable and subject to strong competitive bidding for the consumer market.



MORE, LESS, OR SAME AMOUNT OF BUSINESS!

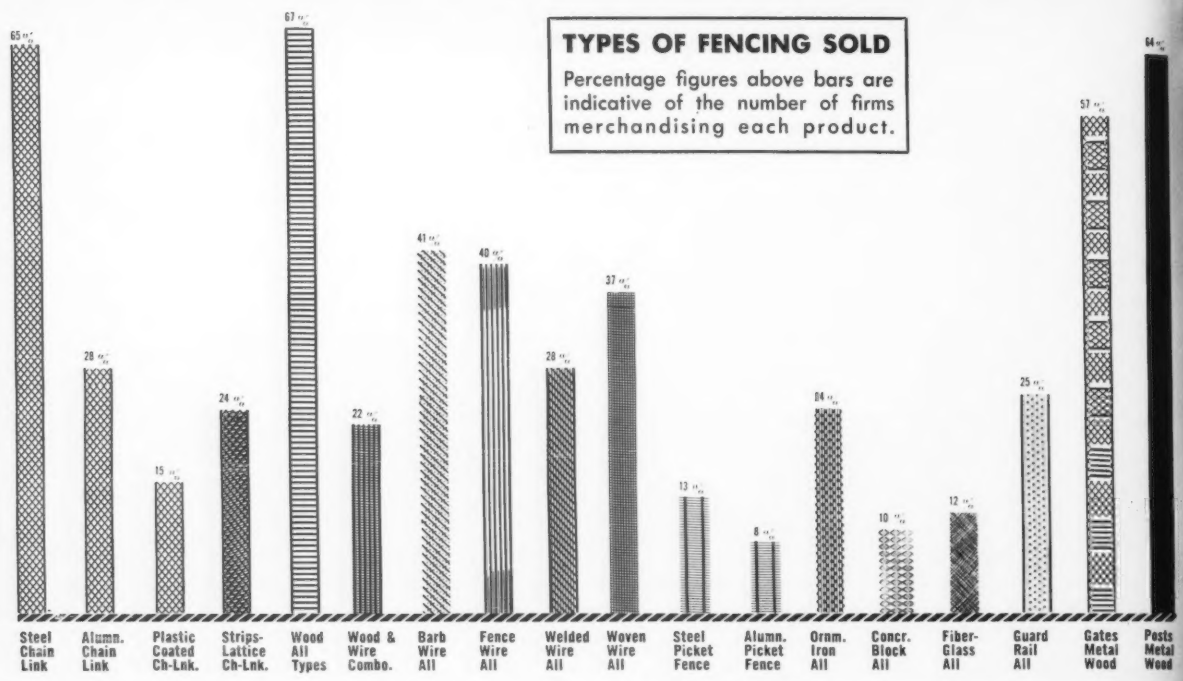
This year, as compared to 1960, will bring more business, according to 64 percent of the firms reporting on the survey; 13 percent say '61 sales will be less, and 23 percent expect the same level of sales.

The question, more business, less, or the same, is posed in relation to the previous year and the year ahead. The accompanying chart shows how the industry views the year ahead, how it viewed 1960 at the beginning of that year, and how '60 actually ended up. "Projected" percentages on the chart represent the number of firms making the given opinions a full year in advance.

Business in 1961. As can be seen from the chart, over one-third of the industry predicts gross sales will be the same or less than in '60. Those expecting more sales just about equals those reporting more actual sales for '60. Business in 1961, according to the projections, will be perhaps slightly better than in '60.

Business in 1960. It will be seen on the chart that at the beginning of the year, 77 percent of the fence firms believed that they would have more sales than during the previous year ('59). But at year's end, only 63 percent said their gross sales had improved. The recession of 1960, it would seem, was not anticipated by the industry as a whole. Particularly, since at the beginning of '60, only one percent said there would be less sales, while it ended up with 20 percent having less sales. Variation of opinion with regard to "same sales" was not great.

MORE—Page 16



SURVEY and ANALYSIS—from Page 15

Business in 1959 and 1958. Going back to 1958, our survey of that year reveals that 62 percent of the fence firms reported "more" actual gross sales—just about the same percentage as so reported in 1960, and the same as are predicting "more" sales for '61. In 1959, 25 percent of the firms, projecting a year in advance, believed they would have less sales, but the year actually ended up with only nine percent having less. There was little variation in the "more sales" category: 72 percent *projected* more sales (a year in advance), and 76 percent reported *actual* more sales.

Taking the four-year period from 1958 through 1961, it would appear that '59 will probably prove to be the best of the four. The fence field has pretty much followed the business trend of the nation as a whole.

TYPES OF FENCING SOLD BY THE INDUSTRY

The variety of fence products available spurs the industry to diversified activity. For example, about two-thirds of the fence firms sell both chain link and wood fencing; well over half sell both gates and posts; almost a half sell barbed wire and fence wire.

The accompanying chart gives the percentage of firms selling each of 18 different classifications of fencing. Not shown in the chart are the percentage of firms selling grass stop border, which is 11 percent; and bamboo-reed, seven percent.

Interpreted another way, it can be said that about one-quarter or more of the industry sells all of the following: steel chain link and components; aluminum chain link and components; chain link filler slats; wood fencing and components; wood and wire fencing; posts (all types); gates (all types); fence wire; barbed wire; woven wire; welded wire; ornamental iron; and guard rail. Almost all the products shown in the chart are sold by one-tenth or more of the firms in the industry.

TYPES OF MARKETS SOLD BY THE INDUSTRY

The survey questionnaire divided the types of markets into four categories, and requested that fence firms indicate what percentage of their business lay in each category. Here are the averaged-out answers:

Type of Market	% of Business
Metropolitan	37%
Suburban	38%
Rural	9%
National	16%

This means that three-quarters of the industry's dollar volume is obtained from metropolitan-suburban areas. It is in these areas, of course, that one finds by far the largest concentration of fence firms as well.

It is also significant that so small a percentage of the business is national. This can only mean that many manufacturers and distributors operate on regional, rather than national, levels.

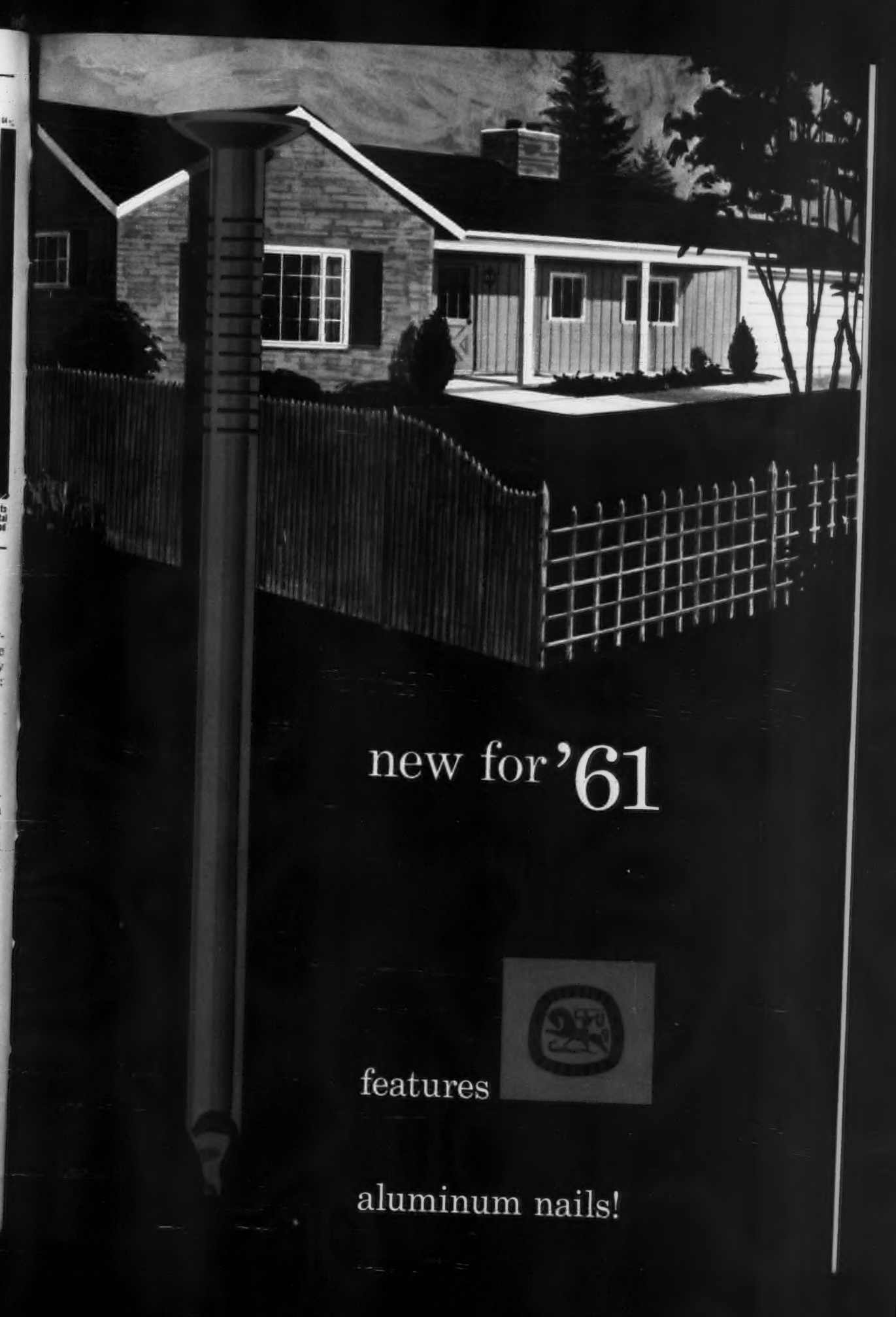
TYPES OF CUSTOMERS SOLD BY THE INDUSTRY

The survey questionnaire divided the types of customers into five categories, and requested that fence firms indicate what percentage of their business lay in each category. Here are the averaged-out answers:

Type of Customer	% of Business
Residential	51%
Comm'l-Industrial	21%
Dealer-Distributor	22%
Highway	4%
Farm	2%

The commercial-industrial category includes utility company jobs, and institutional and governmental work.

MORE—Page 21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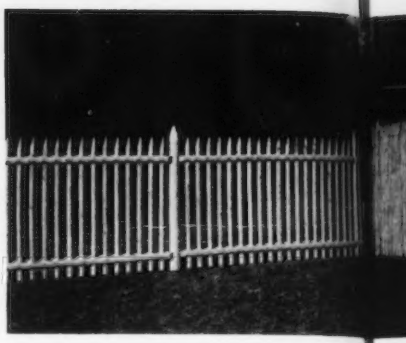
Bay City, Michigan



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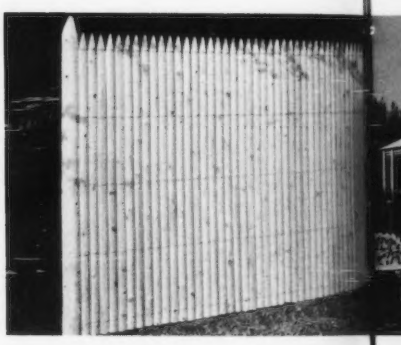

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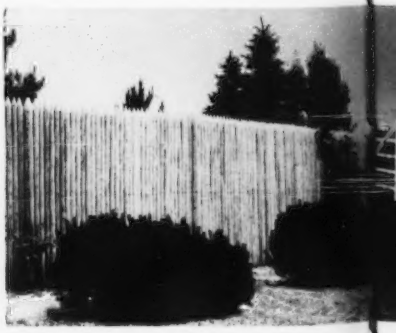

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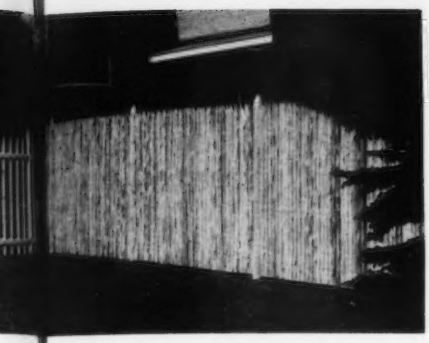

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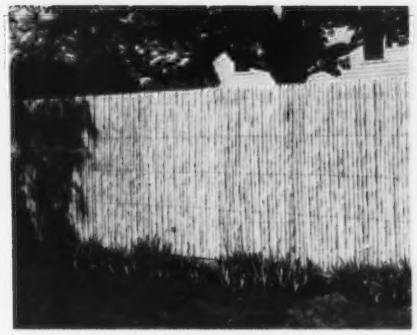
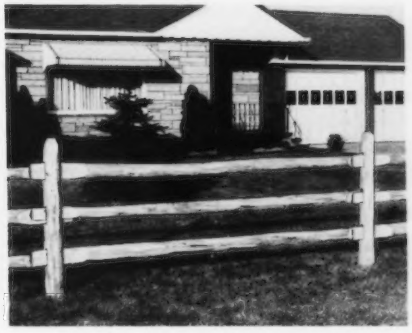
No. 200
Patterned after early American enclosures, this design is today's most popular screening fence. Utmost privacy, protection. 4 to 8 ft. heights. Habitant quality throughout.



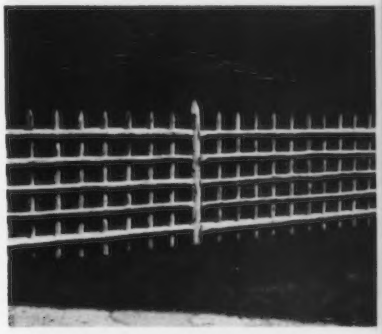
Habitant Americana Paling
No. 2800
This popular, tight, machine-woven fence offers the ultimate in privacy. Copperweld wire won't rust! Available fabric mats only or complete with framework. 4 to 8 ft. heights.

Habitant Courtesy Picket
No. 1220
A deluxe picket style—this "good neighbor" fence looks (and is) the same on both sides. Double facing rails are nailed to full-round pickets. Available in 3, 4 and 5 ft. heights.

Habitant Cape Cod Picket
No. 320
The traditional beauty and sturdy construction of this delightful picket fence makes it a popular favorite. Facing rails prevent removal of individual pickets. In 3, 4, 5 ft. heights.



Habitant Westchester No. 810
Authentic lap-style post and rail appearance is retained in this new Habitant design. Exclusive Habitant machine-cut lap ends assure rigid fit, permit considerable lineal adjustment. With 2, 3 or 4 rails; 3, 4 ft. heights.



Habitant Williamsburg Lattice
No. 500
A delightful variation in picket fencing . . . especially appropriate to creative landscaping. Wonderful background support for climbing vines and roses. 3, 4 and 5 ft. heights.

Habitant Country Squire Hurdle
No. 510
A modern version of a traditional design . . . ideally suited for long stretches of rolling country, for estate definition and livestock enclosure. Shipped K.D.; easily assembled. 10 ft. sections; 3, 4 ft. heights.

Habitant Mackinaw Bark Picket
No. 1400
An especially attractive fence for rustic settings or as a background for gardens and shrubbery. Selected natural bark left on all posts, rails and pickets. 4 to 8 ft. heights.

Habitant Lincoln Post & Rail
No. 410
Pleasingly simple, surprisingly inexpensive, this design harmonizes well with colonial or contemporary homes. Rail ends tenoned into posts. With 2, 3 or 4 rails in 3 and 4 ft. heights.

Here's what HABITANT fence with aluminum nails means to you:

For over 40 years, Habitant Fence dealers have had the widest selection of pleasing, factory-fabricated wood fence designs available . . . more to sell! Now you have the clincher! Only Habitant, the most complete and the most distinctive, also has aluminum nail construction. The beauty you sell, *stays that way*—free from streaks and discolorations; free also from the need for tedious maintenance. You sell no problems, no future complaints.

And here's what aluminum nailing means to your customers:

Habitant Fence with aluminum nail construction sums up in a single word: *satisfaction!* Your customer buys any style, any height, with confidence that it will retain its original wood-grained beauty — and durability — season after season after season. And freedom from maintenance means continuing pleasure without demand upon his time or purse. Beyond the practical advantages, aluminum nail construction also has the significance of quality that is painstakingly conscious of every detail—one more thing to set Habitant apart—*singularly better!*

NOTE: *Habitant Fence is regularly assembled with galvanized nails; aluminum nails, when specified, per current price list.*

HABITANT

HABITANT FENCE, INC.
Bay City, Michigan

The most respected name in wood fence

SURVEY and ANALYSIS—from Page 16

A marshalling of facts and figures on a variety of subjects from Fence Industry's annual survey.

The dealer-distributor category refers to firms selling either to dealers or distributors, or both.

The overlapping of economic functions in the industry is shown in this compilation. The percentage of business in the dealer-distributor category seems rather small, which can mean (1) that fencing is sold in some quantity without going through the dealer's hands, or (2) that the number of dealers responding to our survey was so great that it throws the bulk of the business into the residential level. This double-checks with the fact that 70 percent of the fence firms responding to the survey said they were retailers.

ALLIED LINES SOLD BY THE INDUSTRY

The fence industry supplements its inventory with allied lines. This is particularly true at the dealer level, for the purpose of boosting sales during the slack season in fencing.

Here is a group of such lines, showing how fence dealers replied. The percentage shown represents the number of fence firms selling each product.

Allied Line or Product	% Firms Selling
Dog Runs—Kennels	37.0%
Columns—Railings	23.4%
Trellises	20.4%
Patios & Components	20.0%
Carports & Components	19.2%
Outdoor Furniture	18.0%
Awnings & Components	17.3%
Lumber—Bldg. Supplies	16.9%
Storm Windows	16.5%
Cabins-Houses (Play)	13.0%
Playground Equipment	12.7%
Garden Supplies	12.7%
Siding	12.6%
Child Play Pens	9.2%
Rent Tools	7.7%
Stock Enclosures	7.6%
Landscaping	4.6%
Swim Pools & Equipment	3.0%

Some of these products are made by firms who also manufacture fences. One item, dog runs and kennels, is often made by fence dealers in their own welding shops. Most of the products or services are allied to the building and construction industry, and therefore are "natural" allied lines for fence firms.

OVERLAPPING FUNCTIONS OF FENCE FIRMS

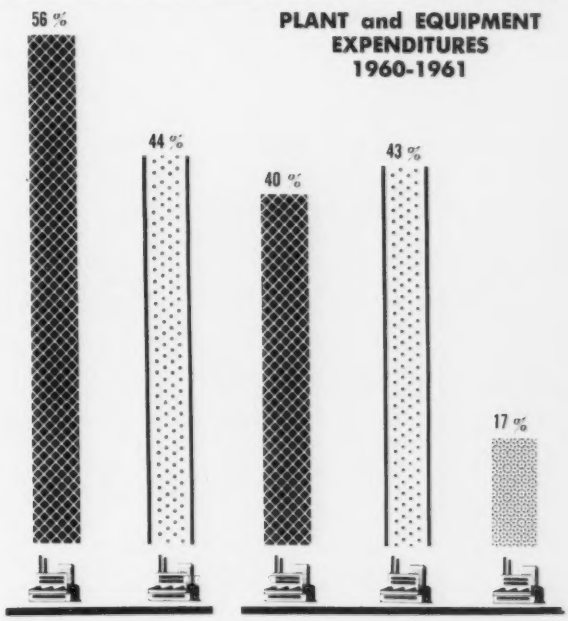
One of the marked characteristics of the fence industry is that firms may be engaged in several facets of economic activity. The survey bears this out. When asked to indicate if they were retailer, manufacturer, distributor, or importer, here is the reply given:

70 percent of the fence firms said they were retailers . . . 45 percent, manufacturers . . . 36 percent, distributors . . . 5 percent, importers.

Since some firms indicated they engaged in two or more of these activities, the percentage total, of course, exceeds 100 percent. As a matter of fact, it totals 156 percent. The conclusion can be drawn, therefore, that about half the firms in the fence industry are engaged in more than one kind of business activity.

Some retailers manufacture their own gates or dog runs, and thus classify themselves as both retailer and manufacturer. Some manufacturers engage in the retail selling of fences. Some manufacturers, in addition, also engage in the distribution of fencing, selling to dealers at wholesale prices. Some fence retailers are distributors. A few firms are engaged in all four categories—retailing, manufacturing, distributing, and importing.

The fact that 70 percent of the firms say they are retailers, and 45 percent claim to be manufacturers, may explain the "fierce competition" described by several dealers in the "Roundup" of opinion published in last month's issue of this magazine.


PLANT and EQUIPMENT EXPENDITURES 1960-1961
56 %
44 %
40 %
43 %
17 %
—1960—
56% of the firms reported major or minor plant expansions or equipment purchases during 1960 as indicated by bar at left. 44% reported no expenditures.
—1961—
During 1961, 40% of the industry contemplates adding to plant facilities, equipment additions and the like. 43% of the field will not expand. 17% are as yet uncommitted. Extenditures for 1961 will approximate $20 million.

PLANT & EQUIPMENT EXPANSION

Over half the industry increased its plant and/or equipment to some extent in 1960, and close to half will probably end up 1961 having made such expansion.

As the accompanying chart shows, 17 percent of the fence firms are uncommitted regarding '61 expansion. It seems likely that a fair share of them will add to plant and/or equipment before the year is out. If so, this would make expansion for '61 about the same as for '60.

The 1960 actual dollar expenditure for plant and/or equipment expansion may be approximated at $25 million for the whole industry. This would seem to be a conservative figure, if anything, since the fence firms (in actual figures given in survey replies, averaged out) said they spent $2 million for such purposes.

In 1961, such expansion ought to reach at least the same amount, indicating a lucrative market for trucks and motorized vehicles, power, welding equipment, and tools, etc.

MORE—Page 22

SURVEY AND ANALYSIS: 1960—from Page 21

A marshalling of facts and figures on a variety of subjects from Fence Industry's annual survey.

LENGTH OF TIME IN BUSINESS!

As in previous FI surveys, the rapid growth in fencing since the end of World War II is reflected in this statistic: 71.8 percent of the fence firms have been in business 15 years or less. Here is the breakdown:

Length of Time in Business	% of Firms Reporting
1 to 5 Years	26.3%
6 to 10 Years	24.3%
11 to 15 Years	21.2%
16 to 30 Years	10.2%
31 to 50 Years	9.8%
51 Years or Over	8.2%

These figures approximate those gathered in two previous surveys. Taking an average for three years ('58-'60), approximately 73 percent of the fence firms say they have been in business 15 years or less. The three-year average for firms in business 16 years or over works out to about 27 percent. Although the percentages in the company-age groups has varied some from year to year, the above averages indicate the persistent trend.

EMPLOYMENT IN THE INDUSTRY AND WAGES

During 1960, employment remained reasonably stable, since 75 percent of the firms reported they employed the same number of people as in '59; and 21 percent employed more people. Only four percent employed less.

On a projected estimate, the number of people employed in the fence industry varies from about 50,000 to as high as 75,000. The variation, of course, is due to part-time workers who are added during the busy peak season. Some firms double, triple, even quadruple their installation crews during the spring and summer seasons.

Almost all firms indicate that they try to maintain a permanent, year-around staff. This fact explains, to some extent at least, the reason why so many different allied products and services account for some portion of the annual business.

Wages in the industry have increased, according to 62 percent of the fence firms which replied to this survey query. The remaining 38 percent reported no increase. Wage increases, however, were probably slight, as indicated by many of the above 62 percent.

SUMMARY AND CONCLUSION

Predominantly young, the fence industry displays several of the characteristics attributed to youth: (1) Brashness. New firms entering the field, some of them undercapitalized, some too inexperienced, but disregarding these essentials. (2) Instability. Wide variations in pricing in the customer market—exceptionally wide ones, not just on a national basis (almost inevitable), but within the same geographical regions. Part of this may well be caused by struggling new firms who liquidate inventory at "bargain" prices. (3) Vitality. A continuing stream of new firms; and of firms moving to new quarters, most of which are indications of expanded sales effort. Vigorous sales campaigns and promotions, especially on the part of the three-quarters of the industry whose company-age group is one to 15 years.

Along with this, however, are a considerable number of stable and experienced firms, among them several giant corporations whose fencing business is but a small fraction of their whole business. As a group, these are the firms which aim to stay in business over the long haul, and conduct their relations with their customers with that uppermost in mind.

There can be no doubt that much fence manufacturing is regional rather than national; that many dealers manufacture some part of what they sell, and some manufacturers sell direct to the consumer, through their own sales agents.

By and large, 1960 fence business was improved for 63 percent of the fence firms. Average percentage of increase in gross sales for the industry was 13.2 percent. Largest gross increases fell in the company-age group of two to 15 years. The outlook for '61 is, roughly, that it will equal or slightly better '60. Dollar volume of gross sales, on a projection of survey returns, is $765 million. But for the industry in its entirety, the figure approaches $1 billion. *These are our gleanings from a high 20 percent of the industry who responded to our survey.*

At least 20 different types of fencing are sold by the industry, and all of them are handled by about 10 or more percent of the fence firms. Varied allied lines and services are handled by a fair portion of the industry—mostly this is supplementary to fencing's slack season.

Metropolitan-suburban areas account for by far the largest share of fence business and most fence firms are located in such areas. Residential fencing accounts for fully half the business, with most of the balance divided between commercial-industrial and dealer-distributor.

Plant and/or equipment expansion is widespread in the industry, with some $25 million spent annually for such purposes. The number of people employed in '60 is not too much different from '59. Wages in '60 increased, but not by very much.

The most marked characteristic of the industry may well be said to be its trend toward expansion and growth. On the manufacturing side in particular, reports of "excellent" business outpace those indicating otherwise. Growth and vitality, then, would sum it up. The positive side of such a situation would seem to predominate over the long haul.

Another noticeable characteristic of the industry, of course, is the wide range of products which it sells. Partly, this is the result of selecting the type of products which will effectively supplement the slack season in fencing. But partly also because for each individual fence firm, in each geographical area, there are perhaps certain products which are more "natural" to the given local conditions than others. Thus, the carports, patios, and outdoor furniture are probably sold by more firms in the sub-tropical climates than in the northern United States.

Certain kinds of fencing, too, are more common in some parts of the nation than in others, and of course the number of dealers handling them would be proportionate to such demand.

The growth of the industry, we may conclude, is linked to a variety of factors, over and above the obvious growth factor of the expanding U.S. population. There can be no doubt, if the facts of the survey are examined, that the public's demand for fencing has grown faster than the population itself.

Provisions for Materials and Installation

Freeway–Chain Link Specifications–California

The requirements of state highway engineers are quite strict and specific on both materials and construction—and this includes guard rail and fencing. Herewith are verbatim specifications for freeway and chain link fence, released by California State Highway Commission.

Editor's Note: The official drawings for the California specifications for chain link and property fence were published in the January 1960 issue of FENCE INDUSTRY TRADE NEWS. *Please refer to pages 12-13 of that issue when reading this article.*

80-3 FREEWAY FENCE

80-3.01 MATERIALS

Materials for freeway fences shall conform to the following:

80-.031A Metal Posts and Braces.—Metal posts and braces shall be hot-dip galvanized, standard weight, commercial quality steel pipe with the galvanizing conforming to the specifications of ASTM Designation: A 120; or they shall be hot-dip galvanized steel of any shape consisting of good commercial quality steel with a maximum carbon content of 0.82 percent and galvanized in accordance with the specifications of ASTM Designation: A 123. Posts shall be properly adapted before galvanizing, to provide means for attaching the fencing to the posts in a manner that will not damage the post or fencing material.

Line posts shall be not less than 7 feet long and shall have a minimum resisting section modulus of 0.32 in^3 in the direction perpendicular to the fence line and a minimum resisting section modulus of 0.12 in^3 in the direction parallel to the fence line. Line posts shall be provided with tapered anchor plates attached securely thereto before galvanizing. The anchor plates shall have a minimum area of 30 square inches and shall be cut from not less than 8-gage metal. The anchor plate may be omitted provided the post is set in a portland cement concrete footing with a minimum cross sectional dimension of 6 inches and a depth equal to full penetration of the post.

End and corner posts and braces for such posts shall be any one of the shapes specified for metal line posts in Section 80-2.01A(1). End and corner posts shall be not less than 8 feet long and shall weigh not less than 3.1 pounds per linear foot. Braces for such posts shall be not less than 7 feet long and shall weigh not less than 1.93 pounds per linear foot.

Pull posts shall conform to the requirements for line posts. The pull post braces shall be not less than 7 feet long and each shall weigh not less than 1.93 pounds per linear foot.

80-3.01B Wood Posts and Braces.—Wood posts and braces shall be round, or sawed rectangular fir or pine timber, sound and free from all decay, shakes, splits, multiple crooks, or any other structural defects. The slope of grain in sawed rectangular posts, for the full length, shall not exceed one in 10. Knots in all posts shall be sound, tight, well spaced, and shall not exceed 1½ inches in size.

Posts and braces shall be pressure treated with creosote, creosote-coal tar solution, creosote-petroleum solution (50-50), pentachlorophenol (oil borne), or copper naphthenate (oil borne) in accordance with the provisions in Section 58. The amount of preservative to be used shall be the minimum required to obtain the penetration specified but the retention shall not be less than the amount provided in Section 58.

Round posts and braces shall be peeled to remove all outer bark and all inner cambium bark, except that occasional strips of inner bark may remain if not over ½-inch wide or over 3 inches long. All knots shall be trimmed flush with the sides, spurs and splinters removed, and ends cut square.

Line posts and braces shall be 7 feet long and all other posts including brace posts shall be 8 feet long. The maximum permissible variations from these lengths shall be minus one inch and plus 2 inches.

The small end of round line posts and braces shall be between 3½ and 4½ inches in cross sectional dimension; the small end of all other round posts including brace posts shall be between 5½ and 6½ inches in cross sectional dimension. The allowable taper from end to end of round posts and braces shall not exceed 1½ inches. Sawed rectangular line posts shall be not less than 4 inches by 4 inches; all other sawed rectangular posts including brace posts shall be not less than 6 inches by 6 inches.

80-3.01C Barbed Wire.—Barbed wire shall conform to the specifications of ASTM Designation: A 121, Class 1. It shall consist of 2 strands of 12½-gage wire, twisted with 2 point 14-gage barbs spaced not more than 5 inches apart.

80-3.01D Wire Mesh.—Wire mesh shall be fabric conforming to the specifications of ASTM Designation: A 116, Class 1. It shall be 32 inches wide, consisting of 8 horizontal wires with continuous vertical stays spaced 6 inches apart. The top and bottom wires shall be 10-gage and the intermediate wires and vertical stays shall be 12½ gage.

80-3.01E Miscellaneous. — Galvanized bolts and nuts for attaching braces and straps to metal posts and suitable galvanized devices for holding barbed wire and wire mesh firmly in position shall be of commercial quality and design.

Staples shall not be less than 1½ inches long and the wire from which they are made shall be galvanized all in accordance with the requirements specified for barbed wire as provided in Section 80-3.01C.

80-3.02 CONSTRUCTION

Line posts for freeway fence shall be spaced at 12-foot intervals and all posts set to the depths shown on the plans.

In general, in determining the post spacing, measurements shall be made parallel to the ground slope, and all posts shall be placed in a vertical position, except in unusual locations where directed by the Engineer it would be more satisfactory to place the posts perpendicular to the ground slope.

Any high points which interfere with the placing of wire mesh shall be excavated to provide the clearance shown on the plans.

Corner and pull posts shall be braced in 2 directions and end posts shall be braced in one direction.

Changes in line where the angle of

MORE—Page 28

SPECIFICATIONS—from Page 23

deflection is 30 degrees or more shall be considered as corners and corner posts shall be installed. Changes in line where the angle of deflection is more than 15 degrees and less than 30 degrees shall be considered as alignment angles. The adjacent line posts at alignment angles shall be made fast to the angle post by means of diagonal tension wires, or if such method is impracticable in the opinion of the Engineer, such posts shall be braced as provided for bracing corner posts.

Pull post assemblies shall be installed at not more than 500-foot intervals between other braced posts.

Metal posts and braces shall be loaded, hauled, handled and installed in such a manner as to prevent bruising, scaling or breaking of the spelter coating. All abraded or damaged galvanized surfaces shall be regalvanized or may be cleaned and painted as provided for metal pipe in Section 66-1.02G if approved by the Engineer.

Metal corner, end, pull posts and braces shall be set in a portland cement concrete footing crowned at the top to shed water.

Metal line posts may be driven in place provided driving does not injure the posts.

At the option of the Contractor, wood line posts may be driven into place, provided the method of driving does not damage the post; or they may be installed in drilled holes of the same dimension as the post and the post made firm in place; or they may be installed in larger drilled or dug holes and backfilled and compacted. In any event the posts shall be set solid and any space left around the posts shall be backfilled and compacted. Driving of all other treated posts will not be permitted and they shall be installed in drilled or dug holes and backfilled and compacted until solid. Round posts installed in drilled holes shall have the butt end down. Line posts which are to be driven shall have the small end machine pointed at the plant before being treated.

Diagonal wire bracing shall consist of two 8-gage galvanized wire securely fastened to wood posts. An extra loop shall be made around each post at each point of attachment and the wire stapled to the posts.

Wood braces shall be connected to adjacent posts with ⅜" x 4" steel dowels and the brace wires twisted until the installation is rigid.

Where the distance between the wood corner posts and the next corner, end or pull post is over 200 feet, 2 brace posts with braces and diagonal tension wires will be required in that direction, otherwise one brace post will be required.

Barbed wire and wire mesh fabric shall be stretched and fastened to each wood post by means of galvanized fence staples and to metal posts by means of suitable fasteners. The barbed wire and mesh fabric shall be attached to the posts at the spacings shown on the plans. On Type WM fence, the lower line of the barbed wire shall be tied to the top wire of the wire mesh with 12-gage galvanized wire at 4-foot intervals between posts.

At all grade depressions where stresses tend to pull the posts from the ground, the fencing shall be snubbed or guyed at the critical point by means of a double 8-gage or 9-gage galvanized wire connected to each horizontal line of barbed wire or to the top and bottom wire of wire mesh fabric, and to a deadman weighing approximately 100 pounds and buried in the ground not less than 2 feet. The fencing shall be stretched and fastened before being snubbed or guyed.

80-3.03 MEASUREMENT

Quantities of freeway fence to be paid for will be determined by the linear foot or mile from actual measurements of the completed fence, such measurements to be made parallel to the ground slope along the line of completed runs of fence.

80-3.04 PAYMENT

Quantities of freeway fence, measured as specified above, will be paid for at the contract price per linear foot, or per mile, for Type BW freeway fence or Type WM freeway fence.

Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground, excavating and backfilling post holes, and furnishing and placing concrete footings and deadmen, and connecting new fences to structures and existing cross-fences, and constructing temporary fences for the protection of stock, shall be considered as included in the contract price paid per linear foot or per mile for the fence and no additional compensation will be allowed therefor.

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing freeway fences, complete in place, as shown on the plans and as specified in these specifications and the special provisions, and as directed by the Engineer.

Special Provisions—Type WM freeway fence shall conform to the provisions in Section 80 of the Standard Specifications and these special provisions. The wire mesh and barbed wire shall be fastened to treated wood posts.

Staples used to fasten barbed wire and wire mesh to wood posts shall be of an L-shape design. The staples shall be not less than 1¾ inches long and shall be fabricated from not less than 0.145-inch diameter steel strand conforming to the material requirements in ASTM Designation: A 121. At least one prong shall have serrations for at least ½ inch of its length. The staples shall be galvanized after fabrication in accordance with the specifications of ASTM Designation: A 153.

Approximately _____ State-furnished metal signs, as provided under "Materials" of these special provisions, shall be attached to the fence at locations designated by the Engineer. The signs shall be attached to the fence by 4 State-furnished fasteners. Full compensation for attaching the fence signs shall be considered as included in the contract price paid for fence and no additional compensation will be allowed therefor.

Special Provisions—Type BW freeway fence shall conform to the provisions in Section 80 of the Standard Specifications and these special provisions. The barbed wire shall be fastened to treated wood posts.

Staples used to fasten barbed wire to wood posts shall be of an L-shape design. The staples shall be not less than 1¾ inches long and shall be fabricated from not less than 0.145-inch diameter steel strand conforming to the material requirements in ASTM Designation: A 121. At least one prong shall have serrations for at least ½ inch of its length. The staples shall be galvanized after fabrication in accordance with the specifications of ASTM Designation: A 15

Approximately _____ State-furnished metal signs, as provided under "Materials" of these special provisions, shall be attached to the fence at locations designated by the Engineer. The signs shall be attached to the fence by 4 State-furnished fasteners. Full compensation for attaching the fence signs shall be considered as included in the contract price paid for fence and no additional compensation will be allowed therefor.

MORE—Page 25

SPECIFICATIONS—from Page 24

80-4 CHAIN LINK FENCE

80-4.01 MATERIALS

All ferrous materials shall be new and galvanized. Imperfectly galvanized material or material upon which serious abrasions of the galvanizing occur shall not be used.

80-4.01A Posts and Braces.—The base material for the manufacture of steel pipe used for posts, braces and gate frames shall conform to the specifications of ASTM Designation: A 120 and the base material for the manufacture of other steel sections used for posts and braces shall be good commercial quality weldable steel.

Posts and braces shall conform to the following requirements:

Location	Type	Minimum size (greatest dimension) in inches	Minimum weight per linear foot in pounds
For Use in Fence 72 Inches High or Over			
End and corner posts	Pipe	2.846 O. D.	4.95
	Square	2.44	5.50
Line posts	Pipe	2.351 O. D.	3.10
	H-Section	2.19	3.90
	U-Section	2.44	3.99
Braces	Pipe	1.630 O. D.	1.93
	H-Section	1.44	2.16
For Use in Fence Less Than 72 Inches High			
End and corner posts	Pipe	2.351 O. D.	3.10
Line posts	Pipe	1.869 O. D.	2.31
	H-Section	1.815	2.66
	T-Section	2.50	2.80
Braces	Pipe	1.630 O. D.	1.93
	H-Section	1.44	2.16

Note: No tolerance will be allowed below the minimum dimensions and weights given above.

Drive gate posts shall be pipe conforming to the following requirements:

Width of Each Gate Unit	Minimum size in inches	Minimum weight per linear foot in pounds
Up to and including 6 feet	2.846 O. D.	4.95
Over 6 feet to 13 feet, inclusive	3.960 O. D.	8.65
Over 13 feet to 18 feet, inclusive	6.599 O. D.	18.02
Over 18 feet	8.539 O. D.	24.27

Note: No tolerance will be allowed below the minimum dimensions and weights given above.

All posts shall be fitted with tops designed so as to fit securely over the posts, and carry the top tension wire, except that the top of H-Section, T-Section, and U-Section posts may be open-slotted in such a manner as to securely hold the top tension wire in position without vertical movement. Such slotting shall allow removal and replacement of a post without disturbing the top tension wire. Tubular posts shall be fitted with watertight tops.

All posts shall be of a total length of not less than the depth of the concrete footing as shown on the plans, plus the length required above ground.

Changes in line where the angle of deflection is 30 degrees or more shall be considered as corners and corner posts shall be installed.

Posts and braces shall be galvanized in accordance with the specifications of ASTM Designation: A 123.

Post tops, extension arms, stretcher bars and other required fittings and hardware shall be steel or malleable iron or wrought iron and shall be galvanized in accordance with the specifications of ASTM Designation: A 153. All required fittings and hardware shall fasten to the posts in the proper manner.

80-4.01B Fabric.—Chain link fence fabric shall conform to the specifications of ASTM Designation: A 392, Class I. The wire used in the manufacture of the fabric shall be 11-gage for all fence 84 inches or less in height and shall be 9 gage for all fence over 84 inches in height.

All chain link fence fabric shall be woven into approximately 2-inch mesh such that in a vertical dimension of 23 inches along the diagonals of the openings there shall be at least 7 meshes. Chain link fence fabric shall have knuckled finish on top and bottom edges.

80-4.01C Miscellaneous.—Between posts, chain link fabric shall be fastened to a top and bottom tension wire. The tension wire shall be at least 7-gage galvanized coil spring steel of good commercial quality.

Tie wire shall be 9-gage aluminum or galvanized steel wire. The use of approved galvanized steel or non-corrosive metal bands will be permitted in lieu of tie wires for fastening chain link fabric to posts and gate frames.

80-4.01D Gates.—Drive gates shall be of the widths designated in the contract item. Walk gates shall be 4 feet wide.

Gate frames shall be constructed of not less than 1½-inch galvanized standard weight pipe conforming to the specifications of ASTM Designation: A 53. Gate frames shall be cross trussed with ⅜-inch adjustable truss rods. The corners of gate frames shall be fastened together and reinforced with a malleable iron fitting designed for the purpose or by welding. Welding shall conform to the provisions in Section 55-3.28, and all welds shall be ground smooth.

All abraded and damaged galvanized surfaces shall be regalvanized or may be cleaned and painted as provided for metal pipe in Section 66-1.02G if approved by the Engineer.

When the spelter coating has been burned by welding, the surface of the welded connection shall be thoroughly cleaned by wire brushing and all traces of the welding flux or loose or cracked spelter removed. The cleaned areas shall then be painted as provided in the above paragraph.

Chain link fence fabric specified for the fence shall be attached to the gate frame by the use of stretcher bars and the tie wires as specified for fence construction, and suitable tension connectors spaced at approximately one-foot intervals.

The gates shall be hung by at least 2 steel or malleable iron hinges not less than 3 inches in width, so designed as to securely clamp to the gate post and permit the gate to be swung back against the fence. The bottom hinge shall have a socket to take the ball end of the gate frame.

Gates shall be provided with a combination steel or malleable iron catch and locking attachment of approved design. Stops to hold gates open and a center rest with catch shall be provided where required.

80-4.02 CONSTRUCTION

Line posts shall be spaced at not more than 10-foot intervals, measured from center to center of posts. In general, in determining the post spacing, measurement will be made parallel to the slope of the natural ground, and all posts shall be placed in a vertical position except in unusual locations where in the opinion of the Engineer it would be more satisfactory to place the posts perpendicular to the slope of the ground.

All posts shall be set in concrete footings conforming to the details shown on the plans and crowned at the top to shed water.

End, corner and gate posts shall be braced to the nearest line post with galvanized diagonal or horizontal braces used as compression members and galvanized ⅜-inch steel truss rods with turnbuckles used as tension members. Line posts shall be braced horizontally and trussed in both directions at intervals not to exceed 1,000 feet, as above specified.

Chain link fabric shall be fastened on the side of the posts designated by the Engineer.

The fabric shall be stretched and securely fastened to the posts, and between posts the top and bottom edges of the fabric shall be fastened to the tension wires. Tension wires shall be stretched tight with turnbuckles spaced at not more than 1,000-foot intervals. The bottom ten-

MORE—Page 26

SPECIFICATIONS—from Page 25

sion wire shall be installed on a straight grade between posts by excavating the high points of ground and in no case will filling of depressions be permitted.

The fabric shall be fastened to end, corner and gate posts with ¼-inch by ¾-inch stretcher bars and not less than ⅛-inch by ¾-inch stretcher bar bands spaced at one-foot intervals. The fabric shall be fastened to line posts and tension wires with tie wires or metal bands. The wire or band fasteners shall be spaced at approximately 14 inches on line posts and at approximately 18 inches on tension wires.

80-4.03 MEASUREMENT

Quantities of chain link fence to be paid for will be determined by the linear foot or mile from actual measurements, such measurements to be made parallel to the ground slope along the line of the completed fence, deducting the widths of openings.

Quantities of gates will be determined from actual count. When more than one gate is placed in an opening, each single unit placed will be counted as a gate. A gate unit complete in place shall include one gate with all necessary fittings, hardware, and gate posts with braces.

80-4.04 PAYMENT

Items of work, measured as specified above, will be paid for at the contract price per linear foot, or per mile, for Type CL-4 chain link fence or Type CL-6 chain link fence and the contract unit price per chain link gate, if gates are required.

Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground between posts, excavating for posts and braces and furnishing and placing portland cement concrete footings and connecting new fences to structures and existing cross-fences, and constructing temporary fences for the protection of stock, shall be considered as included in the price paid for the fence and no additional compensation will be allowed.

ALUMINUM CHAIN LINK FENCE

Aluminum chain link fence shall conform to the provisions for chain link fence in Section 80 of the Standard Specifications and these special provisions.

The aluminum materials required for the construction of chain link fence shall be aluminum alloy conforming to the appropriate specifications and alloy designations of AS TM shown in the following table. For the purpose of identification, the Aluminum Association alloy designations are also shown.

Item	Aluminum Association Alloy Designation	ASTM Specification	ASTM Alloy Designation
Fabric, Barbed Wire Tension Wire, Wire-type Ties, Hog Rings	6061-T94	B 211	GS 11A
	5052-H38	B 211	GR 20A-H38
	Alclad 5056-H38	B 211	Clad GM 50A-H38
Flat Bar-type Ties	3003-H14	B 209	M 1A-H14
Posts, Top Rail, Brace Rail, Gate Frames	6063-T6	B 241	GS 10A-T6
	5052-H36	B 210	GR 20A-H34
Stretcher Bars	6063-T6	B 221	GS 10A-T6
Brace Rods	6061-T6	B 211 or B 221	GS 11A-T6
Turnbuckles, Gate Fittings, Gate Hinges	6061-T6	BT 211 or B 221	GS 11A-T6
	356-T6	B 26	SG 70A-T6
Brace Bands, Stretcher Bands Rail Ends, Brace Ends,	3003-H16	B 209	M 1A-H16
Post Tops	356-T6	B 108	SG 70A-T6
	356	B 26	SG 70A-T6
	360	B 85	SG 100B
Bolts	2034-T4	B 211	CG 42A-T4
Nuts	6061-T6	B 211	GS 11A-T6
Extension Arms (sheet)	6061-T6	B 209	GS 11A-T6
Extension Arms (castings)	356-T6	B 26 or B 108	SG 70A-T6
	360	B 85	SG 100B
Extension Sleeves	3003-H18	B 210	M 1A-H18
Rivets (extension arms)	1100-F	B 211	990A-F
Welding Rod (gate frames)	4043	B 285	R-S5B or ER 4043

Where more than one alloy or temper is shown for an item, either alloy or temper will be acceptable.

Chain link fabric shall be composed of individual wire pickets helically wound and interwoven from 0.148-inch minimum diameter wire to form a continuous fabric having 2-inch mesh. The fabric shall have a knuckled finish on the top and bottom edges, except for aluminum chain link fence (Type A) as hereinafter specified.

The fabric shall be supported with a top and bottom tension wire having a minimum diameter of 0.192-inch, except for aluminum chain link fence (Type A) as hereinafter specified.

Wire-type fabric ties shall have a minimum diameter of 0.148-inch. Flat bar-type ties shall be ½-inch wide by 0.060-inch thick. Hog rings for attaching the fabric to the tension wires shall have a minimum diameter of 0.110-inch.

Line posts shall be 2-inch ASA Schedule 40 pipe, plain ends, or 2⅞-inch outside diameter, 0.105-inch minimum wall thickness, extruded tubing.

End, corner, and pull *posts* shall be 2½-inch ASA Schedule 40 pipe, plain ends.

Gate posts shall be ASA Schedule 40 pipe, plain ends, in the following sizes listed:

Gate Openings	Pipe Sizes Inches
Single to 6 feet, or double to 12 feet, inclusive	2½
Single over 6 feet to 13 feet, or double over 12 feet to 26 feet, inclusive	3½
Single over 13 feet to 18 feet, or double over 26 feet to 36 feet, inclusive	6
Single over 18 feet, or double over 36 feet	8

Stretcher bars shall be a minimum of ¾-inch wide by ¼-inch thick square edge extruded bars.

Brace rods shall have a minimum diameter of ⅜-inch.

Turnbuckles may be cast or forged.

Brace rails shall be 1½-inch ASA Schedule 40 pipe, plain ends.

Brace and stretcher bar bands shall be a minimum of ⅞-inch wide by ⅛-inch thick. Bands shall be furnished complete with carriage bolts and nuts. Bolts shall be ⅜-inch diameter by 1½ inches long and shall be non-removable from outside the fence or gates.

Rail ends, brace ends and post tops shall be castings.

Bolts and nuts shall be manufactured with anodized finish.

Gates shall be fabricated from 1½-inch ASA Schedule 40 pipe, or of a cross-section of equivalent structural strength. Assembly of gates shall be accomplished by welding or by the use of properly designed fittings. Welding shall be done by an inert-gas shielded arc technique which does not require a flux. Fittings shall be either castings or formed from ⅛-inch minimum thickness sheet. Brace rods shall be ⅜-inch minimum diameter. Stretcher bar bands for attaching fabric filler to gate frames, shall be formed from strips of ⅛-inch thick. Bolts shall be non-removable from outside of gates. Stretcher bars for attaching fabric to gate frames shall be ¼-inch by one inch square-edge extruded bars. Hinges shall be the offset type allowing gates to swing parallel with the line of fence and shall be cast or forged aluminum alloy, or they may be commercial quality galvanized malleable iron. Locking devices, center stops, and gatekeepers shall be cast aluminum alloy or commercial quality galvanized malleable iron, except plunger bars which shall be aluminum alloy rod or pipe, or galvanized tubular or bar steel. Gate frame extension tops and gate post tops shall be castings.

Fasteners shall be anodized 15 minutes in a 15 percent sulphuric acid bath at 68°F. to 74°F. and sealed in a 5 percent dichromate solution for 15 minutes at 208°F. to 212°F.

Fence fabric and all other aluminum materials shall have a clean fin-

MORE—Page 35

Value of Calcium Chloride in Concrete

Giving concrete what the trade calls a "kick" is the function of calcium chloride, which is used to speed up the "set," increase early strength. This article is reprinted by permission of the Calcium Chloride Institute.

Calcium chloride has been used for more than 35 years as an admixture in portland cement concrete, to obtain high early strength and to reduce construction costs. As the use of portland cement increased, the calcium chloride industry, through its laboratory research and field investigations, has kept pace with developments in all concrete construction.

MAJOR BENEFICIAL EFFECTS

The main benefit from calcium chloride is the acceleration of the hydration of the cement; it provides the three major effects of 1. faster initial and final set, 2. early strength, and 3. protection in both cold and in cool weather. Calcium chloride also beneficially influences both plastic and hardened concrete.

Initial and Final Set. The first noticeable effect of the addition of 2 per cent calcium chloride by weight of portland cement in the concrete mix is the reduction of time required for initial set. It is reduced by two-thirds under normal conditions—from 3 hours to 1 hour. The final set is reduced by the same ratio—from 6 hours to 2 hours. At lower temperatures the actual time of set will be slower, and the accelerating effect of calcium chloride will be more pronounced. This means earlier finishing, and less overtime. See Fig. 1.

Early Strength. Calcium chloride develops high early strength in concrete without sacrificing ultimate strength. This is beneficial for a number of reasons. It permits removal of forms in one-half the normal time or less, thereby reducing total number of forms required for construction. Early removal of forms permit quicker placing of additional lifts and earlier use of the structure. This effect is important in cool as well as cold seasons. The progress of concrete construction sets the pace for the other trades. See Fig. 2.

Cold and Cool Weather Protection. Rate of strength development is greatly influenced by temperature. Design strength is normally based on curing at 70 F. Any time the temperature drops below 70 F, there is definite lag in strength gain. In many sections of the country temperatures below 70 F are experienced nine months of the year. In these areas benefits from calcium chloride may be obtained during mild weather and in winter construction.

The additional advantage of calcium chloride in temperatures below 70 F is the increased rate of heat development; the total heat of hydration is the same, but it is released earlier with calcium chloride.

The American Concrete Institute Standard (ACI 604) "Recommended Practice for Winter Concreting," presents data on this subject. See Table 1.

The synopsis of the ACI Standard states:

"Air-entrained concrete and addition of 1 percent of calcium chloride by weight of cement are recommended in cold weather. They permit a reduction in the time newly placed concrete should be protected."

Although the use of calcium chloride at normal temperature results in desired strengths in half the time, the percentage comparison is much greater at lower temperatures. For example, at 40° F calcium chloride cured concrete has the strength in 1 day equal to plain concrete at 3 days. At 2 days it has a strength equal to plain concrete after 5 to 6 days. See Fig. 1, Fig. 3, and Table 1 for data at various temperatures.

MORE—Page 28

INITIAL AND FINAL SET

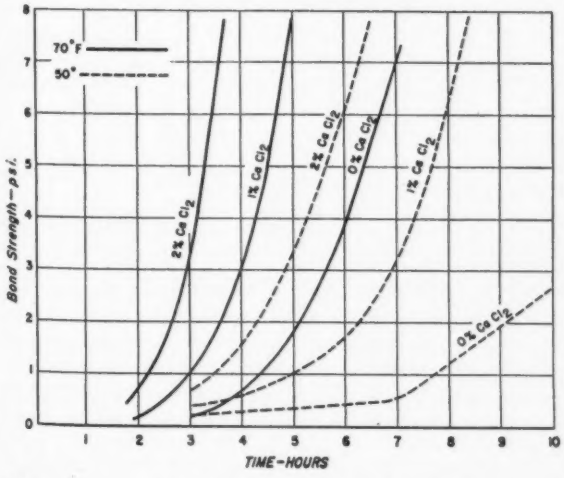


Figure 1 T. M. Kelly and D. E. Bryant, The Master Builders Company, "Measuring the Rate of Hardening of Concrete by Bond Pullout Pins," *Proceedings*, American Society for Testing Materials, Vol. 57, 1957, p. 1029.

EARLY STRENGTH

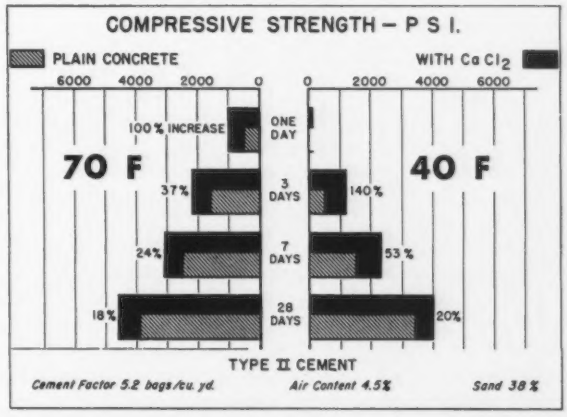


Figure 2 J. J. Shideler, Bureau of Reclamation, "Calcium Chloride in Concrete," *Journal*, American Concrete Institute, Vol. 23, No. 7, March, 1952, p. 539.

CALCIUM CHLORIDE—from Page 27

Calcium chloride should not be considered as an anti-freeze. Normal cold weather protective measures should be followed. The length of time protection is required is greatly reduced, usually from 7 days to 3 days. Normally, optimum benefits are obtained from using 2 percent calcium chloride, and more than this percentage is not recommended.

ADDITIONAL BENEFITS

Ultimate Strength: Substantial increases in ultimate strength, as well as early strength, result from use of calcium chloride. Tests by the Portland Cement Association show an increase of 9 per cent in 3 years.

Integral Curing: The use of integral calcium chloride with overnight wet burlap provides good curing by: 1. reducing moisture loss during early hydration. 2. earlier release of the normal heat of hydration, and 3. acceleration of the hydration process.

Workability and Density: Either increased workability or increased density may be obtained with calcium chloride in the mix. Where increased workability is desired, the water cement ratio is maintained without change when calcium chloride is used. But when increased density is desired the water content can be reduced up to one-half gallon per bag of cement without loss of workability.

Resistance to Surface Wear: Use of integral calcium chloride provides wear resistance (hardness) equal to that obtained from 3-day wet burlap curing, as shown by National Bureau of Standards' test.

IMPORTANT RELATED DATA

Air-entrained Concrete: Use of air-entrained concrete is widely accepted. The value of air-entrainment in increasing durability of concrete is well established.

Air-entrainment tends to retard strength development of high cement factor concrete, particularly at early stages and even with reduced mixing water. The accelerating effect of calcium chloride more than compensates for this possible lag.

Calcium chloride increases the strength of concrete at all ages without decreasing the effect of greater durability to freezing and to thawing obtained with air-entrainment.

Unless compatibility has been established between the air-entraining agent and calcium chloride, each should be added to the mix separately. (Data in Fig. 2 and Table 1 are for air-entrained concrete.)

Ready Mixed Concrete: Calcium chloride is used extensively in the ready-mixed concrete industry. The following information on calcium chloride in concrete, and for use in ready-mixed concrete in particular, is from National Ready Mixed Concrete Association publications No. 34 and No. 44.

"Accelerators may be used beneficially during cold weather, either alone or as a supplement to heated ingredients. They may be sufficient alone in many cases of low temperatures above freezing, or only slightly and briefly below. As their name implies, they increase the rate at which concrete gains strength. The very purpose of accelerators, that of hastening the setting time of the cement, suggests that care must be exercised in their use, particularly in ready-mixed concrete operations and with heated materials.

STRENGTHS GAINED IN AIR-ENTRAINED CONCRETE*

AGE in days	TEMPERATURE 73 F		55 F		40 F		25 F	
	%$CaCl_2$ 0	2	0	2	0	2	0	2
1	23	42	10	23	1	7	1	3
3	52	66	32	53	12	32	8	16
7	74	82	62	76	35	57	10	32
28	100	100	100	100	85	88	26	66

* Figures express percentage of 28-day compressive strength, 73 F moist cured—no calcium chloride. Type I cement.

Table 1 American Concrete Institute Standard "Recommended Practice for Winter Concreting," (ACI 604), from *Journal*, ACI, June, 1956, Proceedings Vol. 52.

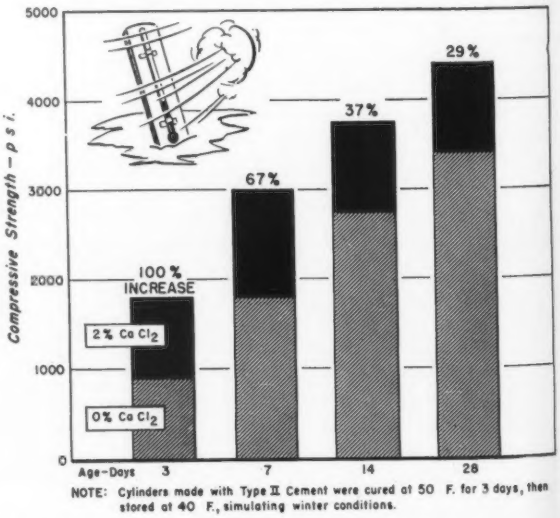
"Care should be exercised in introducing the calcium chloride into the concrete. In general, it probably is best to add it as a solution, but the solution should not be permitted to come into direct contact with dry cement or flash set may occur. Calcium chloride, even in dry form, should not be allowed to come in direct contact with dry cement; it attracts moisture and some becomes wet enough to react with that portion of the cement with which it is in contact . . .

"The Standard Solution should always be added with the mixing water or mixed with it. Under some circumstances it is convenient to batch the solution with the aggregates and in such cases, the mixing water should be introduced before the aggregates are intermingled with the cement.

"Under some circumstances, especially in the case of long hauls, it may be desirable to delay the addition of the calcium chloride until after the concrete has been mixed and shortly before discharge.

MORE—Page 29

COLD AND COOL WEATHER CONDITIONS



NOTE: Cylinders made with Type II Cement were cured at 50 F. for 3 days, then stored at 40 F., simulating winter conditions.

Figure 3 Walter H. Price, Bureau of Reclamation, "Factors Influencing Concrete Strength," *Journal*, American Concrete Institute, Vol. 22, No. 6, February, 1951, p. 455.

CALCIUM CHLORIDE—from Page 28

"There are so many variables, such as temperature, cement content, water-ratio, etc., that effect the rate of stiffening of concrete that no general statement can be made as the permissive length of haul for concrete containing calcium chloride. For temperatures not over 70 F no trouble should result from concrete discharged within 1 hour after the start of mixing."

Types of Aggregate: Calcium chloride reacts with the portland cement in concrete mixes and is, therefore, not influenced by the types of aggregate, when they are sound, clean, and free of organic matter.

Embedded Steel: Calcium chloride does not cause corrosion of embedded reinforcing steel in concrete.

Volume Change: Studies at the National Bureau of Standards have shown a definite reduction in shrinkage through the addition of calcium chloride to the mix.

ADDITION OF CALCIUM CHLORIDE

Solution Form: When a Standard Solution is prepared, regardless of whether regular or concentrated calcium chloride is used, each quart of solution contains the same net amount of calcium chloride (one pound of regular (77% min.) or 0.8 pound of concentrated (94% min.) calcium chloride per quart). Strength of solution may be checked easily with a hydrometer, readily available from calcium chloride suppliers.

How to Make Standard Solution: (1) Fill 55 gallon drum ⅔ full with water. (2) Slowly add 2 bags of calcium chloride while stirring. (Use two 100-pound bags of regular calcium chloride, 77 percent minimum, or two 80-pound bags of concentrated calcium chloride, 94 percent minimum, or one of each.) (3) Stir until completely dissolved. (4) Fill with water to 50 gallon level and stir again.

When specifications call for: 1 percent calcium chloride . . . add one quart of standard solution to the mix per bag of cement; 2 percent calcium chloride . . . add two quarts of standard solution to the mix per bag of cement.

Add the solution to the mixing water or in the batching sequence to prevent it from contacting dry cement. Reduce the total mixing water added by the amount of solution used.

Special Directions: 1. Add the calcium chloride to water; do not add water to calcium chloride. If water is poured on calcium chloride, a hard coating will form which will be difficult to dissolve.

2. Do not add more calcium chloride than recommended, for these reasons: undissolved calcium chloride may settle and be added to the batch; the solution may solidify at higher temperatures; and too much calcium chloride may be added to the mix.

3. Calcium chloride dissolves easily in hot or cold water. Addition of calcium chloride develops heat. Before using allow solution to cool.

4. When preparing solution a small mechanical mixer or air lance is recommended to stir solution.

5. If solution is prepared in drums, keep a clean empty drum nearby. Before more solution is needed, fill this drum using the above method. This eliminates figuring partial quantities.

Dry Form: Calcium chloride may be added to the mix in dry form. When measured by weight it should be added in amounts not to exceed 2.0 pounds of Type 1 calcium chloride, or 1.6 pounds of Type 2 calcium chloride per bag of cement. When volume measure is used, it is necessary to calibrate a container for type and form used, noting differences in bulk density between types and forms. Calcium chloride in dry form should be added to aggregates or to mixed concrete just before discharge, allowing at least 20 revolutions of mixer to insure complete dissolution. Do not allow calcium chloride to come in contact with dry cement.

Automatic Dispensers: Whether dry or solution form of calcium chloride is used, automatic dispensers or feeding devices are recommended. Calcium chloride solution may be added manually, but more uniform batching may be obtained with an automatic dispenser. There are mechanical and electrical dispensers available which assure positive and uniform control of quantity of calcium chloride added to batches.

CUSTOMER TESTIMONIALS—from Page 12

paper ads. These are often two-column five-inch ads in the Sunday lawn and garden section of a Kansas City daily. During the peak season, the salesmen average ten leads weekly, derived from this advertising. In writing his own ad copy, Cordry stresses three things: quality; 10 percent lower winter rates; easy payment terms.

Salesmen also play up the quicker service possible with the "Tri-Set" method of installation, which the company uses. Cordry explains: "With so many people, fencing seems to take on the characteristics of an emergency—a new dog, children who run into the street, new laws against dogs running loose. Stressing the quicker service, possible with the "Tri-Set" technique, frequently clinches the sale with these customers. We also find that we can make better installation early in the spring with this technique. And for yard-finicky customers, the fact that there is no wheelbarrow-full of concrete going over the grass is also an effective point."

In its 20 x 40 foot warehouse, the firm maintains an inventory of approximately $7,000 in fence materials. Suppliers include Laclede Steel Co., St. Louis, Mo.; Southern Metal Products, New Orleans, La.; The Permanent Casting Co., Hot Springs, Ark.; Halco Mfg. Co., Dallas, Tex.

One of the off-season products, storm windows, accounts for about 30 percent of the total sales volume. Another, the company-manufactured dog kennels, serves as a plus item for salesmen to push with fencing (the kennels are portable). They are also advertised direct to the consumer in dog magazines with good results, says Cordry.

Editor's Note: In less than three years, FENCE INDUSTRY TRADE NEWS *has published feature stories about fence dealers in 29 of the 50 states. To obtain a comprehensive idea of how throughly FI covers the field see the Index on page 32.*

AWARDS ★ PROJECTS ★ PROPOSALS ★

The information appearing in this issue concerning awards, projects and proposals were selected from hundreds of releases by FI editors as having possible interest for our readers.

Listings do not imply specific fence business unless it is so indicated.

In order that further information may be obtained by interested readers, each award, project or proposal, lists the reference numbers and the names and addresses of individuals and offices where additional information may be obtained.

CALIF—Proj. #P-3451 and 3452, plans for construction of elementary school and intermediate school, Arlington, est., $1,888,959. George J. Spencer, Asst. Supt., Business, Alvord Unified School Dist., 10354 Keller Ave., Arlington.—Proj. #P-3455 and 3456, plans for construction of new elementary school and additions to an existing one, Escondido, est., $985,550. Joseph S. Damico, Dist. Supt., Orange Glen School District, 2861 Valley Blvd., Escondido.—Proj. #P-3401, plans for construction of civic auditorium, San Mateo, est., $3,809,500. E. R. Stallings, County Mgr., San Mateo County, Hall of Justice & Records, Redwood City.—Proj. #CH-74 (DS), plans for construction at Menlo College, Menlo Park, est., $680,000. James L. Brainerd, Treas.—Proj. #P-3448, plans for construction of public library building, Covina, est., $449,860. Donald A. Leggett, mayor.—Proj. #PFL-76, plans for construction of sanitary system, Tipton, est., $240,000. Harry Rolfi, Pres., Tipton Community Services District.—Proj. #P-3460, plans for construction of sanitary system, Pinedale, est., $450,000. Donald R. McMains, Pres., Pinedale County Water Dist., Pinedale.—Proj. #P-3464, plans for construction of high school, Garden Grove, est., $3,703,220. H. Louis Lake, mayor.—Award, by California Division of Highways, to E. C. Newton, San Diego, for constructing fence, three buildings, grading & surfacing area, furnishing and installing utilities, and removing and disposing of four existing buildings. Bid cost: $62,739.

COLO—Proj. #P-3025, plans for construction of consolidated sanitary system, Denver metropolitan area, est., $29,000,000. John R. Peterson, Secy., Metropolitan Denver Sanitation Committee, Denver.—Proj. #P-3026, plans for improvements to water system, Lafayette, est., $387,826. James W. Graham, mayor.—Proj. #CH-44 (D), plans for construction at Colorado State University, Fort Collins, est., $1,867,000. Joseph M. Whalley, Treas.—Proj. #CH-45 (D), plans for construction at the University of Denver, Denver, est., $2,985,000. William L. Leino, Bus. Mgr.

HAWAII—Proj. #P-3016, plans for construction of sanitary system, County of Hawaii, est., $850,000. Yoshio Inaba, Chief Engineer, Country of Hawaii. Hilo.—Proj. #P-3015, plans for construction of hospital, est., $900,000. Yoshio Inaba, as above.

IDAHO—Award, by Department of Highways, to MacGregor Triangle Co., for highway construction including 1050 lin. ft. steel beam guard rail, bid cost, $2,572; 3260 lin. ft. wire fence type 3-B, bid cost, $1,238; 98,500 lin. ft. wire fence type 5, bid cost, $47,280; two 16-ft. steel gates, type 2, bid cost, $128.—Award, by Department of Highways, to J. H. Wise & Son, Boise, for highway construction including 1800 lin. ft. steel beam type guard rail, bid cost, $4,320; 2430 lin. ft. wire fence type 1-A, bid cost, $753.

ILL—Proj #P-3112, plans for construction of sanitary facilities, Argenta, est., $253,000. Earl Buckley, village president.—Proj. #P-3117, plans for construction of sanitary system, Livingston, est., $293,900. Steve Ruzevich, village president.—Proj. #PFL-IV-11-78, plans for construction of water distribution system, Madison County, est., $430,000. William L. Beatty, District Attorney, Mitchell Public Water Dist., Madison County.—Proj. #CH-103 (D), plans for construction at Mundelein College, Chicago, est., $1,000,000. • Sister Mary Columba, Secy-Treas.—Urban Renewal, 65-acre "Project 6-C," Chicago, est. net cost, $8,112,133. Phil A. Doyle, Exec. Dir., Chicago Land Clearance Commission, 320 N. Clark St.

MASS—Proj. #P-3089, plans for construction of new senior high school, Haverville, est., $4,377,000. Howard R. Reed, City Mgr.—Proj. #CH-55 (D), plans for construction at Mount Holyoke College, South Hadley, est., $1,000,000. Otto C. Kohler, Asst. Treas.—Urban Renewal, 209-acre "Suffolk Square-Faulkner" project, Malden, est. net cost, $6,914,015. Mrs. Carolyn B. Weaver, Exec. Dir., Malden Redevelopment Authority, 6 Pleasant St.

MO—Proj. #CH-65 (H), plans for construction at St. John's Hospital, St. Louis, est., $633,000. Sister Mary Magdalene Murphy, director.—Proj. #CH-64 (D), plans for construction at Northwest Missouri State College, Maryville, est., $2,100,000. J. W. Jones, Pres.—Urban Renewal, 259-acre "Greer" project and 1,285-acre "Murphy" project, St. Louis, est., $8,795,004 and $16,000,000. Charles L. Farris, Exec. Dir., Land Clearance for Redevelopment Authority, 2031 Olive St.—Housing for Elderly, Concordia, est., $547,000. Sponsor: Lutheran Good Shepherd Home.

N.J.—Proj. #P-3110, plans for construction of water system, Township of North Brunswick, est., $1,460,900. Fred J. Hermann, mayor, Municipal Bldg., North Brunswick Township.—Urban Renewal, 9-acre "Bloomfield Avenue" project, Glen Ridge, est., $344,787. Paul Klemtner, mayor.—Urban Renewal, 15-acre "Campus" project, Camden, est., $1,335,983. Raymond J. Osborn, Exec. Dir., Camden Housing Authority, City Hall.

N.Y.—Proj. #P-3081, plans for construction of new city hall, Jamestown, est., $2,863,500. Carl F. Sanford, mayor.—Proj. #P-3079, plans for construction of sanitary system, Erwin, est., $780,000. Jay E. Allen, town supervisor.—Proj. #CH-131 (D). plans for construction at Briarcliff College, Briarcliff Manor, est., $660,000. Peter W. Fazzolare, Bus. Mgr.—Proj. #P-3082, plans for construction of sanitary facilities, Colonie, est., $2,227,380. George A. Roland, village attorney.—Urban Renewal, 356-acre "Morningside Heights" project, New York, est., $3,724,000. J. Clarence Davies, Chmn., Housing & Redevelopment Board, Municipal Bldg.

N.C.—Proj. #CH-39 (D), plans for construction at Appalachian State Teachers College, Boone, est., $750,000. Dr. W. H. Plemmons, Pres.—Urban Renewal, 66-acre "Hayti-Elizabeth Street Project No. 2," Durham, est. $1,156,485. Paul W. Brooks, Acting Exec. Dir., Redevelopment Commission, City Hall.—Urban Renewal, 50-acre "Smokey Hollow" project, Raleigh, est. net cost, $2,102,866. H. P. Edwards, Exec. Dir., Raleigh Redevelopment Commission, 505 Odd Fellows Temple.

ORE—Proj. #CH-36 (H), plans for construction at Emanuel Hospital, Portland, est., $440,000. Paul R. Hanson, administrator, 2801 N. Gantenbein Ave.—Proj. #P-3066, plans for construction of municipal water system, adjacent to Oregon City, est., $674,000. Harold A. Sederstom, Pres., Clairmont Water Dist.—Proj. #P-3064, plans for construction of high school, near Gladstone, est., $2,418,000. E. C. Zak, Chmn., Bd. of Education of Union High School Dist. No. 5, Gladstone.—Proj. #PFL-67, plans for construction of water facilities, Pacific City, est., $119,000. Ray Hushbeck, Chmn., Bd. of Commissioners, Pacific City Water District.—Proj. #P-3065, plans for construction public building for use of county and local government agencies, Marion County, est., $2,173,000. Rex Hartley, County Judge, Salem.

PA—Proj. #P-3248, plans for construction of secondary school, Franklin, est., $3,077,320. A. E. Walz, Secy., Franklin Area School Authority.—Proj. #P-3257, plans for alterations to existing high school, and addition in form of new building on adjacent lot, South Williamsport, est., $2,522,300. A. B. Elder, Chmn. Ex-Officio, School Authority, South Williamsport.—Proj. #P-3258, plans for construction of sanitary facilities, Cambria County, est., $748,000. E. A. Creany, Nanty-Glo.—Proj. #P-3247, plans for construction of sanitary system, Johnstown, est., $790,000. Merle Lehman, Chmn., Stonycreek Township Authority, Johnstown.—Urban Renewal, 50-acre "South Second Street" project, Steelton, est., $2,009,083. John S. Stape, Exec. Dir., Redevelopment Authority of Dauphin County, 341 S. Cameron St., Harrisburg.—Urban Renewal, 63-acre "Wood Street" project, Middletown, est., $1,318,583. John S. Stape, as above.—Urban Renewal, "Mohn Street" project, Swatara Township, est., $963,867. John S. Stape, as above.—Urban Renewal, 91-acre "Carnegie" project, Carnegie, est., $2,535,000. Shetwood Pine, Exec. Dir., Redevelopment Authority of Allegheny County, 429 Forbes Ave., Pittsburgh.

TEX—Proj. #CH-113(DS), plans for construction at Southwest Texas State College, San Marcos, est., $2,409,000. Jack Cates, Bus. Mgr.—Proj. #CH-119(DS), plans for construction at St. Edward's University, Austin, est., $800,000. Brother Donald Connolly.—Proj. #PFL-169, plans for construction of water supply system, Woodson, est., $112,000. G. H. J. Horry, mayor.—Proj. #CH-125(D), plans for construction at Bishop College, Dallas, est., $870,000. M. K. Curry, Jr., Pres.—Proj. #PFL-165, plans for construction of sanitary system and extensions to existing water distribution system, Anna, est., $100,000. William Powell, mayor.—Urban Renewal, 683-acre "Gateway City East" project, Edinburg, est., for first project only of a series of projects, $497,677. D. D. Gensemer, Exec. Dir., Urban Renewal Agency, Talbot Bldg.

WASH—Proj. #P-3117, plans for improvements to existing water system, Goldendale, est., $202,000. George B. Nesbitt, mayor.—Proj. #P-3116, plans for renovating and modernizing Everett High School, Everett, est., $882,000. O. N. Johnson, Secy. of Board, Everett School Dist. No. 2.—Proj. #P-3115, plans for additions and improvements to hospital and nursing home, Odessa, est., $344,088. Adrian E. Werner, Chmn., Bd. of Commissioners, Mohler.—Urban Renewal, 42-acre "University Addition-Northlake" project, Seattle, est., $5,359,896. Talbot Wegg, Urban Renewal Coordinator, Public Safety Bldg.

WYO—Proj. #P-3010, plans for street improvements, Jackson, est., $240,000. Harry E. Clissold, mayor.

INFORMATION

NOTICES OF IMPORTANCE TO THE TRADE

SEND YOUR NEWS ITEM TO THE News Notices Editor . . . for publication.

Dierks Obtains Dismissal Order

Dierks Forests, Inc., 810 Whittington Ave., Hot Springs, Ark., and Pickering Lumber Corp., Standard, Calif., were both cited by the Federal Trade Commission on charges of illegal interlocking directorate late last year. Last month the FTC issued a dismissal order, based on the fact that the interlocking directorate had been discontinued. Frederick H. Dierks and Henry N. Ess, who were directors of both companies, resigned as directors of the Pickering Lumber Corp., effective Dec. 31, 1960.

Norman M. Sted

New Sales Appointment

The appointment of Norman M. Sted as assistant general manager of sales in the general sales department of American Steel & Wire Division, Cleveland, Ohio, was announced last month by B. P. Doty, Jr., general manager of sales for this U. S. Steel Division. The new assistant general sales manager, who has held several key sales executive posts with American Steel & Wire, began his selling career with the wire division in the order department, in 1926. He became manager of manufacturers products sales in 1949, and in 1953 was named to head the Cleveland district sales organization as manager. In 1957, he was appointed central area manager of sales, the post he held prior to his present assignment.

Low Bidder on Blast Fence

The Port of New York Authority, 111-8th Ave., New York 11, N. Y., has awarded a $102,000 contract for the installation of approximately 2,000 feet of metal louver blast fence on the aprons of the East and West Wing buildings, to Sloan & Greenberg, Inc., New York City. The fence will permit jet aircraft to start their engines without being towed away from the terminal—air currents set up by the jet necessitates this, and the fence will catch or greatly diminish the air currents.

Another First for Habitant

Aluminum nails by Reynolds Aluminum Company are being featured for 1961 as a hot selling point for dealers by Habitant Fence, Inc., 900 Harrison St., Bay City, Mich. No streaks, stains, or discoloration from rust is the key point. N. A. Eddy, president of the firm, says the nails were put through a rugged test for strength, holding power, and discoloration, and that they came through 100 percent in all phases of the wood fence manufacturing process.

News Briefs

Beautylink Fence & Wire, Ltd., 70 Wingold Ave., Toronto 19, Ont., Canada, recently arranged for the distribution of its plastic coated chain link fabric with The Colorado Fuel & Iron Corp., Continental Oil Bldg., Denver 2, Colo. The Denver corporation will handle the product in 15 states west of the Mississippi River.

Pilgrim Fence Co., 3117 E. Florence, Huntington Park, Calif., has added a new division, headed by Art Warner, for putting up concrete block buildings around commercial and industrial developments.

Kenneth E. Ellison is the newly appointed engineer in charge of the Virginia Department of Highways materials division. Promoted to the post of assistant materials engineer was C. S. Phillips.

New Business Established: G. F. Fust Contracting Co., Inc., 57 Lincoln Ave., Islip Terrace, N. Y. Filer: Seymour J. Schlesinger, 159 Hempstead Ave., West Hempstead, L. I., N. Y.

MORE—Next Column

Beginning July 1, 1961, the Federal Government will use new forms for use in obtaining bids and in contracting for construction. The new forms feature improvements suggested by experience with the ones now in use. Construction firms, particularly small business concerns, will benefit from a more liberal payments provision, as well as the related assignment of claims clause which should be helpful in financing.

Keystone Steel & Wire Co., Peoria 7, Ill., last month appointed Donald A. Sommer to the post of general sales manager. The great-grandson of the founder of the company, Sommer joined Keystone in 1950, and since 1954 he has served as assistant manager.

Miami International Airport, Miami, Fla., awarded the job of relocating a perimeter road to Troup Bros., Inc., for a bid cost of $159,946. The work includes the grading, drainage, paving, and fencing of the road.

Simpson Timber Co., Seattle, Wash., has named Harvey H. Warnaca as general sales manager. He will be in charge of Simpson's nationwide building products sales. He has been with the company since 1949, and prior to his present position was insulating board products sales manager.

United Shoe Machinery Corp., Boston 7, Mass., is marketing a portable automatic nailing machine, the "Powasert." In operation, the nails are dumped into a power hopper where they are automatically aligned and fed through a transparent, flexible hose to the driver unit. The operator simply presses the nose of the tool against the work surface, and the nail is instantly driven home.

DISPLAY AT FLORIDA STATE FAIR. Every year, Reeves Fences, Inc., 101 S. 13th St., Tampa, Fla., is represented with this display at the Florida State Fair. Feature of the exhibit is the "Bergandi" chain link weaving machine, operated daily for Fair's 11 days.

FI. INDEX: Magazine Feature Articles

A guide to feature articles published in this magazine from July 1958 through November 1960. The breadth and scope of FI coverage is attested to by the variety of subjects.

Abbreviations for months: Jan-Ja; Feb-F; Mar-Ma; Apr-Ap; May-My; June-Ju; July-Jy; Aug-Au; Sep-S; Oct-O; Nov-N; Dec-D.

ASSOCIATIONS

So. Calif. Fence Contractors. Jy.59-26
Detroit Forms Association. My.59-33
Nat'l. Ornamental Iron Mfrs. Ap.59-17

BUSINESS TRENDS

N.60-2; O.60-2; S.60-2; Au.60-2; Jy.60-4; Ju.60-4; My.60-4; Ap.60-4; Ma.60-4; F.60-4; Ja.60-4; O.59-4; S.59-4; Au.59-4; Jy.59-4; My.59-4; Ap.59-4; F.59-4; Ja.59-5; N.58-5; S.58-4; Jy.58-4.

CHAIN LINK FENCING

Robertson Steel & Iron Co. Ma.60-15
Plastic Coated Chain Link. F.60-13
Bergandi Mfg. Co. Au.59-16
Frost Steel & Wire Cloth Co. Ja.59-25
Nichols Wire & Aluminum Co. N.58-19
Harris Fence Co. S.58-7

CONSTRUCTION OF FENCING

This Fence Job Needed Pack Mules. S.60-12
Big Specialized Fence Job. My.60-15
New One-Pass Fence Machine. Ap.60-7
For the Top of Stone Mountain. S.59-19
Reeves Fences a Big One. Ap.59-26
Fence Erecting Simplified. F.59-14
New Device Speeds Erecting. Ja.59-14
Drills Speed Fence Installation. N.58-12
Combining Wood, Chain Link, Iron. N.58-29
Special Truck for Fence Installers. N.58-36
Largest Fence Contract. S.58-6
Erector Tackles Rugged Jobs. S.58-27
Building a Fence Step by Step. Jy.58-20
A Lion Is Fenced. Jy.58-22

DEALER STORIES

ALASKA
SPENARD: Mt. McKinley Fence Co. Ja.59-26

ARIZONA
PHOENIX: E. J. Flood Sales Co. Ju.60-14
Superlite Builders Supply Co. Ap.59-33
Dooley's Building Materials. Jy.58-28
TUCSON: Guardian Fence Co. Ap.60-15
Western Fence Co. Ju.60-27

ARKANSAS
HOT SPRINGS: Pyron-Plumlee Co. My.59-26
LITTLE ROCK: Allied Chain Link. My.59-27
United Fence Co. My.59-27

CALIFORNIA
GLENDORA: Glendora Fence Co. N.58-26
LONG BEACH: Sunset Fence. Jy.59-16
REDONDO BEACH: Bryant Fischer. O.60-4
SAN DIEGO: Atlas Fence Co. Jy.58-30
Balboa-City Iron Works. Jy.58-29
Cyclone Fence Department. Jy.58-31
San Diego Fence Co. Jy.58-29
Western Fence Co. Jy.58-31
Yosemite Fence & Lumber Co. Jy.58-30
SAN LEANDRO: John Bellsmith. Ju.60-6
VENTURA: Durable Fence Co. S.60-22

COLORADO
COLORADO SPRINGS: Pikes Peak Fence.Jy.60-18
DENVER: Elcar Fence & Supply Co. Jy.60-18
PUEBLO: Taylor Fence Co. F.60-16

FLORIDA
DAYTONA BEACH: John L. Cardwell. O.59-8
FT. LAUDERDALE: Fabricated Fences. S.60-14
ORLANDO: Palmer Tuxedo Fence Co. My.59-8
Sanderson Nursery & Garden. Ju.60-27
PINELLAS PARK: Flamingo Fence Co. Ju.60-14

GEORGIA
ATLANTA: Hurricane Steel Industries. S.59-19
Southeastern Fence Co. Ju.60-26
GAINESVILLE: Porter Plumbing. Ju.60-18
MACON: Rio Grande Fence Co. Ja.59-28

HAWAII
HONOLULU: Weinrich Fence. Ja.59-27

ILLINOIS
BLUE ISLAND: Fence Sales, Inc. F.60-18
CARPENTERSVILLE: Fox Valley Fence. F.60-18
CHICAGO: Beverly Fence & Supply Co. F.60-17
Chain Link Fence Co. O.59-11
Crown Fence & Supply Corp. O.59-11
Peter Fox & Sons. O.59-12
The Gee Co. O.59-12
National Fence Products Inc. F.60-17
Steel Fence Erectors & Suppliers. O.59-12
Tru-Link Fence & Equipment Co. O.59-11

IOWA
ANAMOSA: Anamosa Lumber Co. Ap.59-10
CEDAR RAPIDS: Green Thumb Nursery. Ju.60-27
Ogden & Adams Lumber Co. O.59-23
Saylor & Mullaley. O.60-18

IOWA—Continued
MARENGO: Marengo Lumber Co. Ap.59-10
MARION: Marion Cashway Lumber. O.60-10
MONTICELLO: Eclipse Lumber Co. O.60-9
MOUNT VERNON: Kruse Lumber Co. O.59-24
SIOUX CITY: Klemme Window Co. Au.60-10

KANSAS
OVERLAND PARK: Mann Fence Co. O.60-18

KENTUCKY
LOUISVILLE: Louisville Fence Co. Ap.60-13
COVINGTON: Stewart Iron Works. Ma.60-16

MASSACHUSETTS
FRAMINGHAM: Allied Fence Corp. S.60-14
SOUTH YARMOUTH: Cape Cod Fence. N.58-23

MINNESOTA
HOPKINS: Justus Lumber Co. Ap.59-33
MINNEAPOLIS: Canton Lumber Co. Jy.60-17
ST. PAUL: Minnesota Fence & Iron. Jy.60-17

NEBRASKA
LINCOLN: Lincoln Steel Corp. O.60-9

NEW JERSEY
ALLENDALE: H. F. Vanderbeck Co. Jy.58-23
BOUND BROOK: Somerville Lumber. Jy.58-24
HACKENSACK: B & S Supply Co. Jy.58-26
IRVINGTON: Wm. F. Wittel & Co. Jy.58-24
KEYPORT: Dean's Fences. N.58-25
MIDDLETOWN: Middletown Garden. N.58-25
NEWARK: Ace Fence & Supply Co. Jy.58-25
General Metal Mfg. Co. N.58-24
ORANGE: Collinson Fence Co. N.58-24
PARAMUS: Ornamental Rustic Fence. Jy.58-26
Wayside Fence Co. Jy.58-26
ROSELLE PARK: Home Modernizers. Jy.58-25
SHREWSBURY: Bright Acre. N.58-24
WESTFIELD: Meeker's Garden Center. Jy.58-24
WOOD RIDGE: Heydt Fence Co. My.59-16

NEW MEXICO
ALMOGORDO: Foxworth-Galbraith. Jy.58-31
ROSWELL: Pirtle Fence Co. Ju.60-26

NEW YORK
BUFFALO: Allied Fence Co. N.60-17
Aluminum Fence Co. N.60-17
Buffalo Ornamental Iron Wks. N.60-15
Buffalo Wire Works. N.60-16
Gersitz Hardware. N.60-18
McCarthy Metal Products. N.60-19
Wire Products Co., Inc. N.60-16
FISHKILL: A-1 Fence Co. Ja.59-28
NORTH BELLMORE: Woodcraft Fence. Ja.59-26
PATCHOGUE: Anvil-Bell Fence Co. Ja.59-27
ROCHESTER: Abbott Fence Erecting. O.60-17
Alliance Fence Co. O.60-17
Empire Fence Co. O.60-15
Rutner Iron Co. O.60-17
ROSLYN: Frontier Fence Corp. My.59-29

NORTH CAROLINA
CHARLOTTE: Anchor Post Products. Au.60-9
Charlotte Fence Builders. Au.60-10
Hurricane Steel Industries. Au.60-9
Johnson's Handyman Store. Ju.60-15
Metalvent Home Improvement Co. Au.60-9
GREENSBORO: L. A. Reynolds. Ap.59-33

OHIO
CINCINNATI: AAA Fence & Supply. Ma.60-15
Cincinnati Iron Fence Co. Ma.60-17
Davis & Siehl Co. Ma.60-13
General Fence & Supply Co. Ma.60-14
Reliable Home Improvement Co. Ma.60-17
Robertson Fence Co. Ma.60-16
Robertson Steel & Iron Co. Ma.60-15
CLEVELAND: Aluminum Fence Co. Ja.60-10
Borchert Fence Co. Ja.60-9
Brown Fence & Wire Co. Ja.60-9
Ferbert Fence Co. Ja.60-8
Great Lakes Fence Co. Ja.60-10
COLUMBUS: Browne Bros. Equipment. F.60-15
SPRINGDALE: Fred L. Meyers Mfg. Ma.60-14
TOLEDO: Marleau-Hercules Fence Co. N.58-23

OKLAHOMA
OKLAHOMA CITY: Capitol Gardens. Jy.60-16
Cook's Fence & Awning Co. Ju.60-8
Oklahoma Wire & Iron Works. Jy.59-24
Perkins Fence Co. N.58-8; Jy.60-15

OREGON
PORTLAND: Midway Lumber Co. N.58-27

SOUTH CAROLINA
GREENVILLE: Amco Fence Co. Jy.59-21

TENNESSEE
MEMPHIS: Chisca Fence Co. Ja.59-27
NASHVILLE: Sears Roebuck. S.60-15

TEXAS
DALLAS: Cypress Gardens of Texas. O.59-22
MIDLAND: Western Fence Co. Jy.59-22
ODESSA: Basin Fence Co. O.59-21
SAN ANGELO: San Angelo Fence Co. O.60-19
WHARTON: Tripulas Construction Co. N.58-27

UTAH
SALT LAKE CITY: Western Fence Co. S.60-11

WASHINGTON
SEATTLE: All City Fence Co. O.60-6

WISCONSIN
MILWAUKEE: Milwaukee Fence. F.60-18

EDITORIALS

Recession: Is There or Isn't? N.60-1
Inform the Customer? 0.60-1
Our Great Disadvantage. Jy.60-2
The Third Chair. Ju.60-2
Tax Overhaul Needed. My.60-2
Your Business Image. Ap.60-2
Selling or Underpricing. F.60-2
There's No Such Thing. Ja.60-2
Where Do They Go? O.59-2
Don't Pass This Up. S.59-2
What About the GNP? Au.59-2
To Be or Not To Be. Jy.59-2
Imports and Inroads. My.59-2
Trends and Timidity. Ap.59-2
Gripes and Reasons. F.59-2
Extent and Leanings. Ja.59-2
Prices and Problems. N.58-2
It Stands To Reason. S.58-2
A Point of View. Jy.58-2

EQUIPMENT & TOOLS

Spotlighting Post Hole Diggers. Ju.60-23
Versatile Equipment. F.60-10
New One-Pass Fence Machine. Ap.60-7
New Device Speeds Erecting. Ja.59-14
Special Truck for Fence Installers. N.58-36
Materials Handling Equipment. S.58-9
Playground Equipment & Fences. O.59-16

FIBERGLASS & PLASTIC FENCE

Market for Fiberglass Fence. My.60-11
Framed Plastic Panel Fence. O.60-4
Dupont "Lucite" as Fence Panel. Ap.60-9
Fiberglass Fences. Ja.59-19
Plastic Coated Chain Link. F.60-13

FITTINGS & ACCESSORIES

Quaid's 30 Years of Know-How. F.60-11
Southern Metal Products. O.59-14
Permanent Casting Co. My.59-24
Hackney Hardware & Supply Co. S.58-23
Slip-On Fittings. Jy.58-13

GATES

Farm Gates. O.60-8
Lincoln Steel Corp. O.60-9
Baumgartner Gate Factory. O.60-10
Self-Closing Gates. Jy.59-12
Two-Way Gate. S.58-17

IMPORT PROBLEM

Competitive Disadvantage. Jy.59-15
Foreign Trade. S.58-11

LABOR RELATIONS

Rulings on Cases. Ju.60-11
Rulings on Cases. Ja.60-14
Rulings on Cases. O.59-9
Rulings on Cases. Au.59-19
Rulings on Cases. Ap.59-29
Rulings on Cases. F.59-21
Rulings on Cases. Ja.59-16
Rulings on Cases. N.58-11
Rulings on Cases. S.58-14
Rulings on Cases. Jy.58-10

LEGAL ASPECTS

Two Rulings on Compensation. N.60-8
Fencing of Pools Matter of Law. S.60-4
Fence Unnecessary? Law Too Vague. S.60-8
Fencing Is a Fundamental Right. S.60-8
Negligence in Erecting Jury Question. Au.60-4

METAL PICKET FENCE

Metal Picket Fences. Jy.58-8
How the Steel Picket Originated. S.58-7
Steel Picket Fences. Ja.59-33

ORNAMENTAL IRON

Iron Fence Features. S.58-29
Wrought Iron—It's Unique. N.60-4
A. M. Byers Co. N.60-4
Davis & Siehl Co. Ma.60-13
Stewart Iron Works Co. Ma.60-16
Cincinnati Iron Fence Co. Ma.60-17
Architectural Aluminum Co. S.58-29

MORE—Page 34

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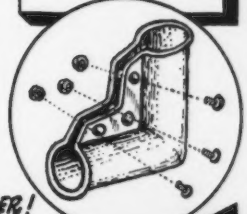

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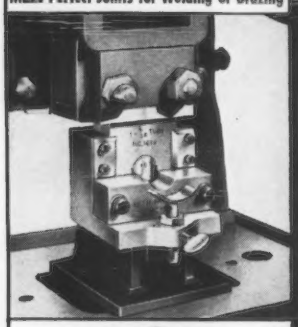

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INDEX—from Page 32

PRODUCTS

Fence Service Aids: N.60-21; My.60-19; Ap. 60-17; Au.59-23; My.59-32; F.59-27; Ja.59-35; N.58-35; S.58-32; Jy.58-32.

SALES & PROMOTION

Beat the Competition—With Service. Au.60-6
Promoting at Fairs & Garden Shows. Jy.60-15
Cost Analysis Helps Develop Sales. Ju.60-8
How To Ask for the Order & Get It. My.60-7
What's In It for Me? Prospect Asks. F.60-6
Fence Tie-in Promotion Works Well. F.60-15
Fence Contests Spur Sales. Ja.60-6
The Price Is Secondary. S.59-23
Customer Says "I'll Think It Over." Jy.59-18
Secrets of Persuasion. My.59-17
Turn More Prospects into Customers. Ap.59-19
Rentals Growing into Big Business. Ja.59-10
New Approach to Fence Sales. Jy.58-5

SURVEYS

Comparison in Industry, 1958 to 1959. Ma. 60-11; Ap.60-11
Survey of Fence Field. Ja.59-30; F.59-23; Ap.59-19

TAX PROBLEM

Depreciation Costs. Jy.60-6

TECHNICAL

Specifications: Chain Link Barrier Fence (Texas). N.60-11
Specifications: Steel Plate Guard Fence (Texas). O.60-11
Specifications: Chain Link Fence (Wash.). Au.60-11; Beam Guard Rail (Wash.). Jy. 60-11
Can Treat Your Own Fence Posts. O.59-18
Concerning Creosoting. O.59-20
Designed Wood Fences. S.59-15
Which Posts Held Best? S.59-20
Corrosion Research. Au.59-11
Specifications for Fencing (N. Y.). My.59-19
Specifications: Right Way Fence (Ia). F.59-8
Torsional Strength of Wire. Ja.59-23
Research on Corrosion. N.58-15
Aluminizing Process. Jy.58-14
Methods for Modern Metals. Jy.58-19
Metal Crafting. Jy.58-17

TRADE SHOWS

Road Builders Show. Ma.60-6
Building Products Expo. Ja.60-11
Flower & Garden Show. My.59-14
Home Improvement Show. Ap.59-31
National Retail Lumber Dealers Association. Ap.59-34; Ja.59-12; Ja.59-26.

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It's Redwood in Arizona. Jy.58-27
Redwood Fences. S.58-19
Fir Plywood Fences. F.59-17
Designed Wood Fences. S.59-15
Farley Fences. Au.59-13
MacGillis & Gibbs Co. Ju.60-19
C. I. Miller Cedar Co. Jy.60-17
Simpson Redwood Co. Ma.60-23

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Farm & Snow Fencing. O.60-8
Combining Wire with Split Rail. Ja.59-18
Farm Fences Build Profits. N.58-30
Snow Fencing in Iowa. S.59-25

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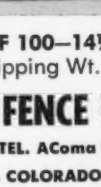

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SPECIFICATIONS—from Page 26

ish, free of oil, dirt, or other deleterious materials.

The portion of aluminum fence posts to be embedded in portland cement concrete shall be coated a minimum of 10 mils dry film thickness with a properly pigmented amine or polyamide curing epoxy type paint furnished by the Contractor. The epoxy paint after incorporating the amine or polyamide curing agent shall produce a film which will completely cure at a minimum temperature of 70° F. The cured paint film shall have alkali resistance, adhesion to aluminum, flexibility, water resistance and hardness.

Aluminum chain link fence (Type A) shall conform to the provisions herein provided for aluminum chain link fence, except that a top rail shall be provided in lieu of a top tension wire, and the top edge of the fabric shall have a barbed finish in lieu of knuckled finish, and, in addition, the posts shall be equipped with extension arms for supporting _____ lines of barbed wire.

Top rails shall pass through the base of the extension arms and shall form a continuous brace from end to end of each stretch of fence. Top rail lengths shall be joined with expansion sleeves, 6 inches long, manufactured from 1½-inch ASA Schedule 40 pipe, expanded or bored to 1.690 inches ID or 1.690 inches ID drawn tube with ⅛-inch minimum wall thickness. Sleeves shall be of the outside type and shall be indented at the center to prevent creeping. Top rail shall be securely fastened to terminal posts by means of rail ends and brace bands.

The extension arms for line posts may be formed from sheet having 0.080-inch minimum thickness or may be cast, or may be formed from a combination of sheet or casting. The extension arms for corner and end posts shall be made of castings, except that any sheet portions thereof shall have a minimum thickness of 0.105-inch. The extreme upper barbed wire slot shall be 12 inches above the top of fabric and the extreme outer barbed wire slot shall be 10 inches from the fence line. All extension arms shall be firmly seated on the top of the posts and shall be perpendicular to the fence line. Diagonal arms shall be perpendicular to the plane of the fence.

Barbed wire shall consist of 2 strands of 0.110-inch minimum diameter wire with 0.080-inch minimum diameter 4-point barbs. Barbs shall be spaced approximately 4 inches apart.

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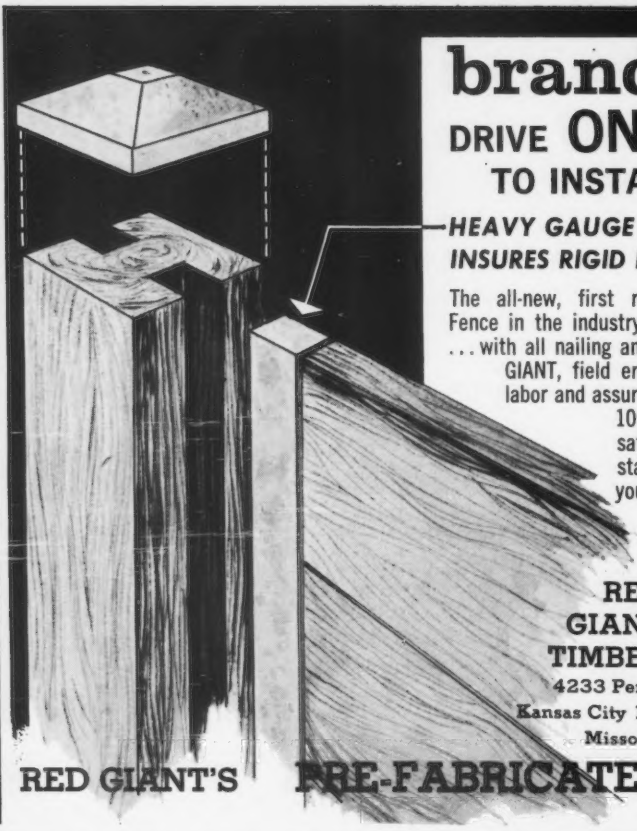

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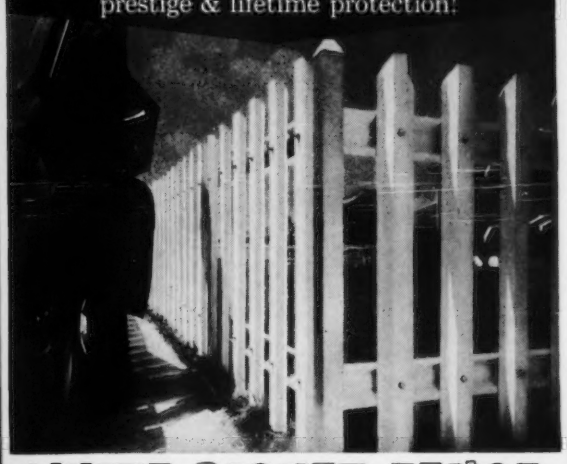

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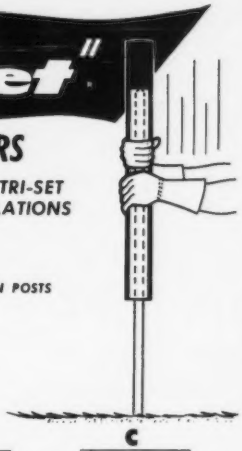

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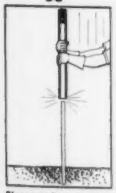
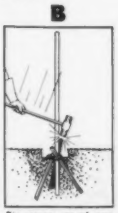


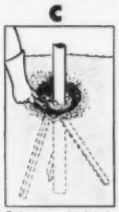
Place post driver over post and work up and down like pile driver. Check post at intervals for plumb.

B



Dig recess around post about 4" deep to accommodate lock ring. Insert steel angles and drive into earth with sledge.

C



Tighten nut and bolt locking anchors to post. Cover setting with earth. Your post is now ready for use.

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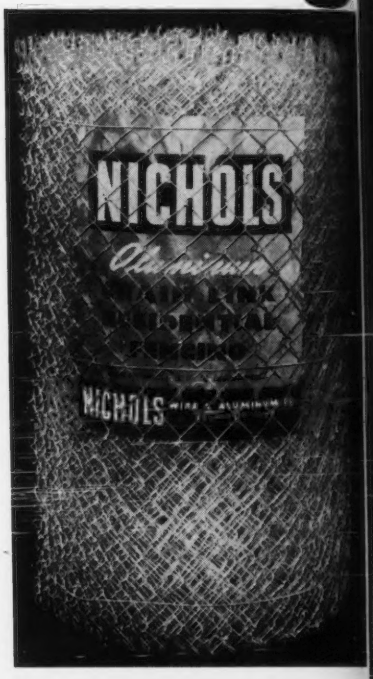

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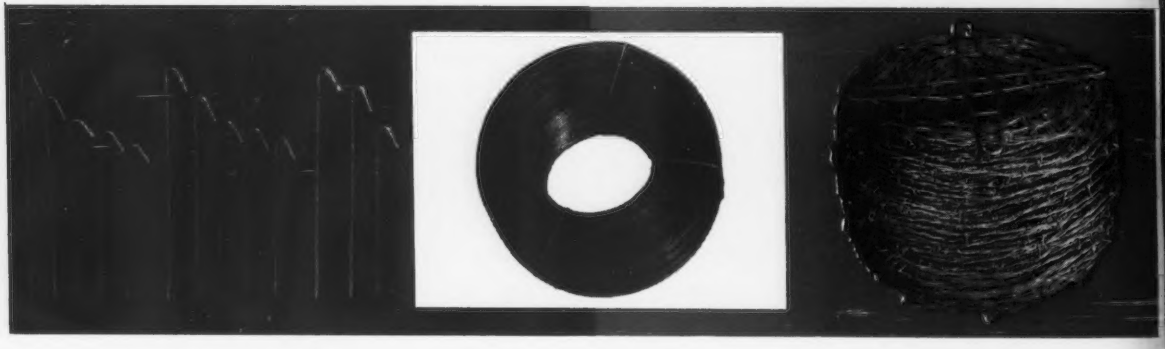

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